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PSYCHIATRIC FACTS AND FANTASIES.[1]

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PSYCHIATRY, according to the "Oxford English Dictionary", is the "medical treatment of diseases of the mind". Many evenings could be spent in the discussion as to what we mean by "disease" and "mind", for both these terms are becoming rather antiquated in these days of psychosomatic reaction types. Even the meaning of "medical" is becoming rather vague with all our ancillary services. I would prefer to define psychiatry as a body of scientific knowledge dealing with facts of abnormal human behaviour.

It was William James who spoke of "irreducible and stubborn facts", and the lives of all of us are based on events in Nature which occur and recur with such regularity that we regard them as facts. In them we believe on the evidence of our senses, though we realize only too well that our senses often lead us into error. The yearning for security, for facts on which we can rely, appears to be an essential part of our make-up as human beings.

Apart from the collection of facts, many ask for the explanation of these facts, the fitting of them into an order of Nature which they believe to exist. In his Lowell Lectures on "Science and the Modern World", Whitehead emphasizes that some men since the dawn of history have had faith in a detailed order of Nature. Only since the Middle Ages, however, has this faith formed part of the intellectual inheritance of the general educated public, and only since then has there been widespread activity to discover principles that will explain this order of Nature. Before this period the Greek philosophers had their theories of Nature, and by skilled use of logic and deductive reasoning developed a conception of moral order in the universe and a wealth of dramatic literature. This survived the Dark Ages and acted as the stimulus to the Renaissance.

It seems, however, that with the exception of Aristotle and Archimedes, there was little of the spirit of modern scientific inquiry into the "brute facts of nature" or of the state of "imaginative muddled suspence" which precedes the successful inductive generalization which we regard as a scientific theory. This is not by any means the same as the learned use of deductive reason so beloved by the Greeks and mediæval scholars.

Francis Bacon, a father of the scientific method, believed that the collection of facts and the use of logic would lead to the principles of science. It is today realized that as well as the collection of facts there must be a process of selection of those appropriate from the vast store already available or to be discovered by experiment.

If we are to attain an understanding of an order of Nature, we require selected facts, but we also require an act of imagination or fantasy, without which no theory of causation is possible.

A fantasy may be a very individual matter which explains a small selection of facts to the satisfaction of one individual alone, or it may suffice for a few individuals; but it may perchance prove to be of universal validity, explaining a sequence of events, and survive the test of many experiments. In the latter case the fantasy becomes elevated to the level of a scientific fact or principle of

[1] President's address, read at a meeting of the Australasian Association of Psychiatrists, Sydney, October 29, 1951.

science. However, sometimes events occur which these principles of science no longer explain, and modifications are required. Thus experienec may cause the supposed principle to drift back again into the realm of fantasy.

To the discovery of facts and the creation of fantasies many men devote their lives. They "scorn delights and live laborious days" and feel their life well spent if it seems that order has been brought into any part of chaos and fantasy transmuted into a "stubborn irreducible fact" of science.

Professor W. I. B. Beveridge, in his book "The Art of Scientific Investigation", gives many illustrations of the importance of imagination in directing research, and of the many modifications of the original theory that may be forced by the cold hard facts of experimentation. He also emphasizes that many theories must be completely discarded though they seemed ripe with promise. He quotes Claude Bernard as saying that "men who have excessive faith in their theories or ideas are not only ill-prepared for making discoveries; they also make poor observations". Nevertheless faith in one's fantasies is important as a driving force to long and tedious experimentation. Our own fantasies are very precious and are the driving force behind most of the advances as well as the trials and tribulations of mankind, while cold logic and reason linger behind afraid. It has been well said by O'Shaughnessy:

> We are the music makers,
> We are the dreamers of dreams
> Wandering by lonely sea breakers
> And sitting by desolate streams,
> World losers and world forsakers
> On whom the pale moon beams.
> We are the movers and shakers
> Of the world forever it seems.

In psychiatry more than in any other field of medicine we have to do with fantasies. These occur in many of our patients from the at-first-glance completely absurd delusions of the hebephrenic to the apparently coldly logical creation of the paranoiac, from the expansive visions of the manic to the nihilistic dreads of the depressive and the fleeting fantasies of the delirious. Seldom do we find any trace of insight into their falsity or doubt as to their truth, even when the community, in the shape of ourselves, steps in with compulsory admission to hospital.

Sometimes the community itself is led into fantasy for many years and behaves in a way that to later generations appears quite insane, and our own profession has often strayed into error both in ætiology and in therapy. Often these fantasies have been supported by what appeared to be the latest scientific discoveries and have received the support of the elect as well as of the multitude. Moreover, treatment based on these fantasies has appeared to be overwhelmingly successful, and adverse criticism has been stifled for a while. Later, with a turn of the tide, sobriety of judgement has returned, and often the fantasies have been discarded as quite erroneous or have proved to be the foundation for further investigation from which facts appear to have emerged.

To trace the development of all these fantasies throughout history would be a fascinating task, but one requiring knowledge and time quite beyond the scope of this address.

However, it may be of interest and perhaps of benefit to examine a few of these fantasies of the past. Throughout the ages, psychiatric disorders appear to have been a battleground between fact and fantasies.

Witchcraft or Dæmonology.

The oft-quoted Hippocratic denunciation of the term "sacred disease" as applied to epilepsy is an early example of the attempts to discard supernatural forces as the sole explanation of psychiatric disease. Belief in supernatural forces and possession by demons is of course mentioned in the scriptures. It thrived in the Middle Ages and persisted throughout the Inquisition and the Reformation till well into the eighteenth century. The history of dæmonology and witchcraft makes rather terrifying reading, and there is little doubt that the widespread acceptance of these doctrines by all churches was a definite handicap to advance of knowledge, including the study of psychiatric disorder.

It is probable that much of the public fear and ostracism of psychiatric patients is due to persistance of such beliefs.

It has been estimated that a quarter of a million people were tortured and killed by Inquisitors and witch courts during their existence throughout three centuries. The great majority of these victims would now, it seems, be regarded as suffering from a psychiatric disorder rather than as being possessed by a demon, or as having entered into an alliance with Satan and participated in the orgies of the Witches' Sabbath.

King James I of England, in his book on "Dæmonologie" protests against the writing of Michael Scot, an Englishman, and of Johan Weyer, a German physician, who endeavoured to explode this fantasy, insisting on a natural explanation of the apparent mysteries by the study of the individual possessed, just as Hippocrates did some 2000 years earlier. In spite of their efforts we find John Wesley stating in 1768 that "giving up witchcraft is in effect giving up the Bible", and the belief died very hard. Witchcraft has been well called the "mass delusion". It must have satisfied some deep-seated need to persist for so long, and it certainly helped to explain many facts of life and the illness and frailty of mankind. Where else could be found such a satisfactory explanation of epilepsy, nightmares, fevers, crippling, sterility and all the varieties of insanity? The truth of this explanation was obvious, for the possessed with a little painful persuasion would tell the story of how the devils entered into them. It was also capable of proof as stringent as many of the proofs of doctrines which many still accept, for if a suspected witch was thrown into water and drowned she was innocent, but if she survived and was put to torture she would testify that she was a witch. Such proof was at any rate sufficient to satisfy a court of law. The potency of fear and suggestion can clearly be seen in this chapter of history, while the difficulty of dispelling fantasies which serve to explain the otherwise inexplicable and perhaps satisfy other needs of mankind is plain.

That the influence of the Church in the care of the mentally ill was not always harmful, however, is shown by the foundation of Bethlem in London in 1247, and the care of the disordered in monasteries throughout the Middle Ages. The interest of the Church in healing is still very great, and to many the increase in psychiatric disorders in recent times is believed to be due to a decline in religious faith.

Christian Science.

Faith healers and revivalists of many types through the ages have produced cures of many disorders when legitimate practitioners have failed. In the last century we have seen an amazing development from a belief of Phineas Quimby, a watchmaker from New Hampshire, United States of America, that he was possessed of the secret of Christian healing. This belief implanted in one of his bedridden patients led to her cure and supplied the foundation on which Mary Baker Eddy built her world-wide Christian Science Church. The denial of all matter and material ills to most of those in this gathering must seem a fantasy pure and simple, the acceptance of which requires a very real faith. The healing benefits that come from this acceptance can be learnt by anyone who reads *The Christian Science Sentinel* and notes the facts presented by those recovered from a wide variety of ailments. Behind the development from a bedridden neurotic to the aggressive, dominating and—as she believed—divinely appointed founder and head of this church was a drive which many would envy. This drive is not easy to explain, though her early years may seem to supply the solution. She certainly became the head of a matriarchal cult which would admit of no doubts as to the truth of her beliefs. Excommunication was the fate of those who differed from the Mother figure, but peace and well-being came to those who believed that all disease was an illusion and error born of mortal mind.

In 1903 Mark Twain prophesied that by 1930 Christian Science would become "the governing power in U.S.A., to

remain that permanently. It will become the worst trust since the palmy days of the Inquisition", and though this has proved false Christian Science is still a powerful force in the community.

Animal Magnetism.

Belief in scientific discoveries and their application have also led to fantasy. In the eighteenth century Dr. Mesmer, a medical graduate of Vienna, was led by his interest in magnetism as well as in astrology to the construction of a theory of a universal magnetic fluid which could be brought by the magnetizer to benefit unhealthy tissues. He achieved therapeutic success and popular fame with his seances, but was expelled by the medical faculty in Vienna and went to France. He was so successful there that he was called to Paris by Louis XV. He took the nobility and world of fashion by storm with his cures and with the emotional tension developed and liberated as "magnetic crises" in his seances. However, he was anxious for the approval of the world of science, and his theories were examined several times by world-famous scientific bodies with, on the whole, little approval.

A commission of the French Academy decided that "animal magnetism minus imagination is nothing" and therefore it was outside the scope of scientific medicine. The Faculty of Medicine also condemned animal magnetism, and Mesmer left Paris for Switzerland only to return a few years later, in 1779, to deliver a series of lectures. In response to pressure from Louis XVI and some of the nobility, the Academy of Science and the Faculty of Medicine five years later appointed another commission of scientists of the calibre of Benjamin Franklin, Lavoisier and Dr. Guillotin, who again rejected animal magnetism and stated that "since the imagination is a sufficient cause, the supposition of the magnetic fluid is useless". Again, the ways by which imagination worked was by practically all regarded as outside the scope of scientific inquiry.

This finding, together with warnings as to the dangers to morality inherent in the practice, led to Mesmer's going to Germany, where a commission of the Prussian Government reported favourably in 1812. A very successful exponent of group therapy, he died in Switzerland in 1815. but mesmerism continued to flourish. The French Academy was led to appoint in 1831 still another commission, including Itard and Magendie. Their report affirmed the existence of "animal magnetism", but stated that in the majority of cases "weariness, monotony, or the imagination" produced similar phenomena. It was, however, declared to be a "therapeutic expedient" having a place in medical science, but to be used only by physicians. This report was not published, the Academy was dissatisfied and another more critical commission was appointed in 1837. In 1847 the Holy See promulgated a rule from the Vatican interdicting the use of animal magnetism except for therapeutic reasons because of its supposed supernatural aspects. The spread of mesmerism to England led to the retirement of Dr. Elliotson from the staff of University College Hospital when he was forbidden to use it in the wards. He had been the first to use Laennec's stethoscope and had been highly regarded.

Other fantastic offshoots of the scientific discoveries by Volta and Galvani were the famous tractors of Elisha Perkins, a medical man of Connecticut, United States of America. A pair of these was presented to, and accepted by, the Royal Society of London. This was not overlooked in the advertisements. The overwhelming success of these tractors has been described by Oliver Wendell Holmes, who emphasizes that this was due, as is so often the case, to the amazing "facts of cure" arrayed to prove the claims of the inventor. Perkins's non-medical son carried them to further fame by skilled advertising, lived in the home of John Hunter in London, and formed a Perkinean Institute headed by a peer of the realm, which flourished for many years. The famous tractors, composed at first of iron and copper, but later of gold and silver, were imitated in various ways by two unbelieving physicians of Bath, who were, however, able to procure the same or better results. This led to the downfall of tractoration. Still another fantastic exponent of electricity and magnetism was the famous quack John Graham, whose Temple of Health opened in London in 1779. Within were magnetized baths to "dissipate melancholy and mitigate extravagant gaiety", as well as the "Celestial Magnetico-Electrical Bed", which conferred on those sleeping therein life everlasting and eternal vigour for the price of only £100 per night.

Hypnotism.

Belief in animal magnetism died hard and still persists in some quarters, in spite of Dr. James Braid, of Manchester, who in 1841 tried to obtain the permission of the British Medical Association to show at the annual congress the therapeutic benefit of "neurypnotism", which he held was due to pathological fatigue of the eye muscles leading to sleep, and not to any magnetic fluid. His attempts to obtain a scientific investigation failed and he was led astray into the field of phrenology. He is, however, justly regarded as one of the pioneers of modern psychotherapy, for he stressed "the remarkable docility of patients during hypnotism which made them most anxious to comply with every proper request or supposed wish of others". It was only when he was becoming aged that his work achieved true fame under the influence of Charcot at the Salpétrière in Paris, and even then Charcot was led into error by his experimental hypnosis on docile subjects. His recognition of three phases in hypnotism and the identification of hypnosis with hysteria and a supposed disordered physiology of the nervous system all now seem to be fantasy. However, it was Charcot with his fantasies who in 1880, over 100 years since Mesmer's first series, had hypnosis accepted by the Academy of Medicine in Paris as legitimate medical therapy, though it was a pupil of his, Bernheim, who, following in Nancy the teaching of Braid and Liebault, came closer to the truth with his dictum that "there is no hypnotism, it is all suggestion". And it was in the same town, Nancy, in France that a humble apothecary, Coué, achieved fame in the 1920's with his autosuggestion and his formula that "day by day, in every way, I'm getting better and better". And so the believers did, in quite enormous numbers. Many present tonight must remember the flood of books and his triumphal tour of Great Britain and the United States of America. His success lasted for several years but slowly declined.

Psychoanalysis.

It was to Charcot's clinic at the Salpétrière and later to Liebault and Bernheim at Nancy that a young Jewish neurologist came from Vienna in the years 1885-1899. Sigmund Freud needs no introduction to this gathering, and tributes to his genius are to be found in every modern textbook on psychiatry. Biographers and critics of Freud have stressed the fact that he was his own analyst and have attempted further analysis of his life with attempts to trace therein the origin of his doctrines.

The early criticisms of his emphasis on the role of sex as being due to his life in pleasure-loving and licentious Vienna seem very superficial, but further study seems more significant. His early life was spent in an orthodox home in a Jewish minority. An aging and stern father, already a grandfather when Sigmund was born, and a young, beautiful and doting mother, seem to have contributed a rather unusual background to his emotional life. This may perhaps explain why such stress has been laid by Freud on the Œdipus complex, its universality and importance in moulding personality and its disorders. We find this theme being emphasized time and again, and in his final "Outline of Psycho-analysis" (1949) he states: "I venture to assert that if psychoanalysis could boast of no other achievement than the discovery of the repressed Œdipus complex, that alone would give it claim to be counted among the precious new acquisitions of mankind."

His transition from the pampered child to the pampered husband and father are regarded by some as significant for his later rather marked inability to make a satisfactory social adjustment or to consider the possible merits of criticism. While his writings pay considerable lip service to the value of criticism, there is little evidence that it called forth any response from Freud except bitter denunciation of the critic. His position of comparative isolation from the ranks of his medical colleagues and his lack of academic recognition, after years of intensive histiological

research under Bruecke and Meynert, led to his seeking the companionship in regular weekly meetings of a small group of his disciples. In this group he seems to have assumed the role of an autocratic father. Those who did not agree with his views tended to drift away or be expelled from the group.

As early as 1911 Adler, the head of the Vienna Psychoanalytic Society—and the one chosen to sit at Freud's right hand at these meetings—was invited to leave, and did so with nine others who thought this move unfortunate. Jung, who in 1910 had been proposed by Freud as perpetual head of the International Psycho-analytic Association, and who had been appointed for four years, offended by his self-confessed "soft-pedalling of sex" and his emphasis on ethics and religion. From that time on Jung went along a completely different and still less scientific path with fantasies of a racial unconscious and a progressively more mystical doctrine.

After the First World War Freud became more concerned with the cultural and social implications of analysis than with its therapeutic use, and it seems as though he became somewhat dissatisfied with this aspect. Reports of those who visited him for analysis during his latter years, when he was faced with the threat of death from cancer and was having a series of operations, the first as early as 1923, show him in a rather unexpected light. He was not always the passive, aloof analyst, but one who gave advice, criticism, commands and exhortations. He is quoted as saying to a patient who was not making satisfactory progress: "I am an old man, you do not think it worth your while to love me." Towards the end he stated: "The power of analysis is not infinite; it is limited and the final result always depends on the relative strengths of the conflicting psychic institutions."

Time and ignorance will not permit of a detailed description of his many changes in belief and dogma during a long life. Many of these seem to have resulted from hypotheses which served to fill in gaps revealed by deduction from his primary fantasies and to have little or no basis in fact. It seems that he passed from a belief in the role of specific abnormal sexual practices in the causation of specific neuroses to a belief in the universality in neurotics of early sexual traumata. These later he found to result from fantasies which he thought were infantile in origin, and to these he ascribed a pathogenic role. Then came the emphasis on the universality of the Œdipus and castration complexes and the development of infantile sexuality. Throughout, the theme is one of conflict, at first between narcissistic and object libido and finally between Eros, in which he included self and race preservation as well as ego and object love, and the death instinct. Changes also occurred in therapeutic technique from hypnosis, to waking suggestion, to free association with recall and reconstruction of the past, to a working through of the transference neurosis, and finally to an emotional reeducation of patients to enable a successful adjustment to the present. Changes also occurred in the supposed structure of the mind from the conscious, pre-conscious and unconscious with the guardian censor of early theory to the ego, super-ego and id of later days.

A disillusioned post-war public seized on some aspects of his work, and for a while the medical journals were full of articles and correspondence dealing with the evils attaching to his name, while novelists, dramatists and journalists were issuing a flood of half-baked psychoanalytical interpretations of human behaviour. This publicity was a cause for considerable concern to Freud, and he endeavoured in 1920 to ensure the safety of the orthodox doctrines by forming a small group of the faithful disciples, six in all. However, this again was defeated by the defection of Rank, for many years secretary to the group and Freud's intimate collaborator over twenty years. He wrote a book on the trauma of birth which met with the approval of Ferenczi, but not of Freud or of the other disciples. This was followed by the death of Abraham, and the inner circle was reduced to Sachs, Jones and Freud.

From this time on it seems that his directing hand was no longer so powerful, and many unorthodox schools began to arise, owing in part to dissatisfaction with the constantly changing doctrines, but even more to the comparative lack of therapeutic response from even prolonged orthodox analysis.

Adler and Jung each had their followers. Otto Rank in Paris developed a school of "transference analysis". Karen Horney in New York, Franz Alexander in Chicago and Melanie Klein in London are only a few of those who have developed derivative and in some ways rival schools of thought and therapeutic technique.

The Second World War seems to have encouraged dissension, though the scattering of the orthodox European psychoanalysts throughout the world would, it seems, have served to weld the doctrines closer together. They are to be found in positions of the highest teaching responsibility in many countries.

Whether one reads or travels in search of the facts of psychoanalysis, they are very hard to find, and rival claims for the essential and persisting truths clamour for ascendancy.

In the psychoanalytical circles of the world bitter quarrels exist, and the atmosphere seems to be that of the Inquisition and witch courts rather than of scientific inquiry. Expulsion and resignations of influential analysts still exist to a degree that seems to point to a disintegration of the whole structure of Freudian doctrine, or at least to the need for a profound modification. It is by no means only amongst the non-analysed that heretics and unbelievers are to be found, though the explanation is of course made that if doubt of the doctrines persists even after analysis, this is due to insufficient or unsatisfactory analysis and to a persisting unconscious resistance to the analyst.

The lengthy course of a therapeutic analysis is often exceeded by that of a training analysis, and it is no wonder if some become exhausted and stop their analyses before their critical ability wilts under the long-continued strain. In a training even more than a therapeutic analysis, the wish to believe is often very strong, for in many quarters an analysis is almost a prerequisite for an academic position. Bodily death does not follow from confession under this brand of inquisition, and even though intellectual judgement may be surrendered and faith in one's analyst take its place, this does not wholly justify the identification of an analysis with the evils of the witch courts and Inquisition. The implicit faith of the successfully analysed, however, is rather like that of a disciple of Mary Baker Eddy, with its calm acceptance of inconsistencies, obscurities and omissions of facts as an unquestioned basis of belief.

We are now entering a phase when the Freudian fantasies are being subjected to scientific criticism and experimentation of a type sadly lacking in earlier years, and this comes from the ranks of psychologists, biologists and physiologists, as well as of physicians.

It is my personal fantasy that the next few years will see advances in the study of personality and its disorders which will leave many of the existing Freudian doctrines to be numbered amongst the fantasies of the past. Amongst these may be mentioned the divisions of the instinctual life, the schemes of mental structure and the predominant role of infantile sexuality with the universality of the Œdipus and castration complexes. The motivation of much of our behaviour by unconscious drives to the satisfaction of biological needs and their derivatives will, it seems, persist, and so will the reality of conflict, repression of the unpleasant aspects of our personality, resistance to the acceptance of these and rationalization to explain these resistances; but to what extent these will be held responsible for neurotic and psychotic behaviour must remain doubtful at present. It is at least possible that we may find other methods of studying and adjusting the "relative strengths of the conflicting psychic institutions" and thereby save much human distress and unhappiness without many of the absurdities now advanced as doctrines and taught as dogma to students of the medical and other learned professions. These often seem to be to the detriment of their appreciation of the need to study the facts of human behaviour. The interpretation of dreams and the

products of free association by fixed schemes of symbolization may be mentioned in this connexion.

Freud himself expressed a hope ("Outline of Psychoanalysis") that "the future may teach us how to exercise a direct influence, by means of particular chemical substances, upon the amounts of energy and their distribution in the apparatus of the mind. It may be that there are other undreamt-of possibilities of therapy. But for the moment we have nothing better at our disposal than the technique of psychoanalysis, and for that reason, in spite of its limitations, it is not to be despised". Unfortunately the technique itself has many limitations and is far from being a trustworthy method of investigation, with its "plausible inferences" to fill in the "breaks in the series of [conscious] mental events". The recognition by Freud that "the relative certainty of our mental science rests upon the binding force of these inferences" and that "inferences and interpolations" vary with the emotional states of the analyst, cannot be dismissed by the statement that "such sources of error arising from the personal equation have no great significance". It is not sufficient to say in support of some fantastic absurdity that "analysis has shown", for only too often the material resulting from analytic sessions has been shown to be the result of suggestion, subtle and long-continued, while "free association" is seldom, if ever, free from this influence.

We have seen the rise of other schools of thought, which have been regarded for a time as solutions of the problem of personality and its disorders.

Conditioned Reflex.

The school of Pavlov, with his conditioned reflexes, and offshoots such as those of J. B. Watson with his behaviourism, seem to be rivals to Freudian psychoanalysis. Pavlov rightly emphasized the dangers inherent in introspection and the difficulty of building scientific knowledge on this basis; but the attempt to force all behaviour into the conditioned reflex framework by the use of such terminology as "freedom" or "investigatory" reflexes seems quite unjustified. J. B. Watson also pointed out some of the weaknesses of contemporary psychology and psychoanalysis, and his acid comments are still worthy of attention; but it seems unwise to scrap all that we think, feel or desire in favour of objective observation of behaviour. In a truly dynamic theory of behaviour and its disorders, the conditioning of response, learning by association and by trial and error, the role of tissue needs and many other factors must all be considered; but the fact that we are conscious most of the time cannot surely be omitted as a factor to be considered.

Constitutional Factors.

The role of inherited factors in the causation of the psychoses seems to be supported by statistical studies of identical twins, though criticism has not been silenced even here. It is certainly not a sufficient explanation as the sole determinant, and its statistical investigation is difficult in the psychoses and still more so in the neuroses. In spite of all the stress that has been placed on infantile traumata, the innate psychological similarities and differences in a litter of puppies as well as in any human family will be apparent to any who care to look. These can only with the greatest difficulty be explained by introjection, identification and so forth.

Physical trauma at birth now seems to be accepted as a fact in the causation of many cases of mental defect and emotional instability, while the role of maternal rubella in causing congenital defects has led to experimental work on the intrauterine development of the individual. Although these defects when recognized are generally rather gross and obvious, it is quite possible that other minor defects of personality are due to these or similar factors. Bodily ill health, sensory defect and glandular imbalance in childhood all contribute to personality by their effects on intelligence and emotional instability and on the canalization of behaviour into faulty habits of reaction.

Thanks mainly to our psychological colleagues, we had become relatively secure in the belief that the degree of innate intelligence varies from idiocy to genius, and that this can be measured with a considerable degree of reliability. Even this belief has been modified of late with the emphasis on the inhibition of the normal intellectual growth by emotional factors; but the variability of innate intellectual endowment still exists, though it is often neglected in our work.

Time does not permit of a discussion of the influence of biological factors such as puberty, pregnancy, menopause and senility, as well as those of fatigue, infection, toxæmia and dietary deficiencies, in modifying our personalities and predisposing the subject to faulty adjustments and disease, but their importance is well recognized. The same may be said of psychological factors such as persistent frustration, fear and anxiety.

The role of such psychological factors in the causation of many of the apparently somatic disorders also seems to rest on a firm basis of experimental fact—for example, the pioneer work of W. B. Cannon. If I appear to give little time to these facts, it is not because they lack importance.

It seems that from the study of the fantasies of the past and present we can gain some insight into the ætiology and treatment of psychiatric disorders.

We see how limited is the power of logical thought when in conflict with fear and anxiety or other intense emotion, and how powerful is suggestion. We see clearly the need of the human race for faith and trust, and how, when this is centred in an individual, he and his followers are able to sway the logical thought as well as the emotional life and behaviour of the individual and the crowd. Any fantasy that seems to explain the otherwise inexplicable and satisfies the craving for security will attract some believers. When such a fantasy has its origin in the mind of someone with a gift for leadership, the results may be incalculable for health or disorder. Such fantasies may appear as absurd to those who follow, as do those of witchcraft, dæmonology or animal magnetism, to all of us, or as some of the Freudian doctrines do to me. These, however, appear no more absurd than some of the fantasies now generally accepted as scientific facts, such as television, and the splitting of the atom, or to come nearer home, than the effects of insulin hypoglycæmia on schizophrenics, electro-convulsion on melancholic states, or penicillin on the general paretic would have seemed to us a very few years ago. Even the most fantastic fantasy may be proved to be true by experiment and become a fact of science; but proved it must be, no matter how tedious the task and how exacting the technique required.

Psychiatry as a science is still barely viable. We have no exact classification of many of the disorders with which we are confronted, our knowledge of ætiology is vague, and our subject matter is still ill-defined and seems at times to be as wide as the sweep of human personality. Therapy is still largely empirical, though at times very successful indeed. We know that we are faced with problems of enormous significance for humanity, for it is a "stubborn irreducible fact" that psychiatric ailments affect a large proportion of individuals, and that these in any civilized community require at least as much hospital accommodation as those who are ill from supposedly somatic illness. We know that much of this distinction between psychiatric and somatic illness is the result of foolish fantasy and that just as many of our patients are ill in the soma, so many of the supposedly somatic are ill from emotional causes, and that their cure, if any, will be by emotional readjustment. Moreover, we know that many of the ailments that beset the civilization of today have their origin in the psychiatric problems of our leaders and ourselves. And faced with these problems we have as yet few facts and much fantasy.

In our teaching, in dealing with our patients and in our claims of panaceas for the ills of civilization, let us consider some of the fantasies of the past. Let us examine our supposed facts and fantasies and bear in mind the cry of Oliver Cromwell: "My brethren, by the bowels of Christ I beseech you, bethink you that you may be mistaken." Only by so doing may we be saved from error. Let us take heed lest we be mistaken, but let us not be afraid of fantasy, for without an active imagination the advance of psychiatry will be hindered.

Acknowledgements.

My thanks are due to Dr. Alan C. Jeffrey and Dr. Winston S. Rickards for their help and criticism.

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ENDEMIOLOGY IN FAMILY PRACTICE.[1]

By HENRY SHANNON, M.D. (London), D.P.H. (Oxon), D.T.M. and H. (Sydney),
Melbourne.

If the general practitioner has any usefulness in medical research, it must lie in his ability to synthesize otherwise disparate parts into a whole, and for this office breadth rather than depth is a prerequisite. Upon a high philosophical plane one might contrast the specialist and the family doctor as one would the wisdom of the western world and that of the east. Since the Renaissance in the west, all emphasis has been laid upon extending and enhancing the physical and instrumental means of observation, whereas in the east, all weight has been laid upon exalting the individual's powers of emotional perception and insight. It is in this latter practice that the family doctor, by reason of his human contacts, often excels.

All this may be interpreted as a preamble to confessing that I have nothing new to say, but only perhaps a new way of saying it. If, however, a discussion of philosophy appears irrelevant to the practice of medicine, I would remind you that as a belief in "determinism" is vital to scientific thought, so is a belief in its converse—that is, "free-will"—imperative to the practice of prevention, and we have yet to find a means of rendering these two modes of thought compatible with each other.

The title of my discourse is borrowed from the field of preventive medicine, and I have selected it with more than one purpose in mind. The main one was to evoke the sympathetic interest of those of you who are engaged in environmental hygiene, the next to show in what manner the two fields overlap, and finally, perhaps, to show that prevention in general practice can be reduced to terms of group action essentially no different from those which apply in so-called public health.

In my capacity as part-time medical officer of health I am daily made aware of the gulf which separates the two halves of medicine, and if I can hint at how this may be bridged in the distant future my purpose will be fulfilled.

Since we are to display some aspects of general practice to an audience accustomed to definitions and vital statistics, we must digress for a while and make a general reconnaissance of the field. Everyone who has attempted the task of defining this branch of medicine has stumbled over difficulties; I do not intend to, for I believe that, properly conducted, it is no more than family practice with a nice mixture of the physical and moral approach to sickness resting upon long and intimate acquaintance and the reciprocal confidence which springs from it. The moral approach reaches its most important function in prevention. There is an increasing realization to day that the towering colossus of science not only has feet of clay but is dumb when approached with problems of human conduct. This is nothing new, for Plato wrote in 400 B.C.:

> So neither ought you to attempt to cure the body without the soul; and this is the reason why the cure of many diseases is unknown to the physicians of Hellas . . . for the part can never be well unless the whole is well.

Enough has been said to define the general limits of the subject, and we can now turn to a statistical study of its contents. Here we shall encounter more difficulties.

Comparatively few studies have been published with a wide validity; the experience of one or indeed of several men is subject to considerable bias. The age and aptitudes of the practitioner, the location of the practice and the facilities available all have an effect upon the character of the work done, and in Australia we look in vain to the health departments, the government statist or the friendly societies for statistical information.

The two most definitive events in human life are birth and death; with the first of these the family doctor may nowadays be much or little concerned, according to his capacity to suffer insomnia or according to his patients' financial ability to make use of the specialist obstetrician.

Death he will inevitably witness; but as a gauge of the content of his practice the published death rates are quite fallacious. They are specious, because many cases that terminate fatally have only brief commerce with the doctor, and many more in which the complaints are chronic or not killing never appear under those headings in the mortality tables.

The general inaccuracy of death certification should not be forgotten either; it would be interesting to speculate upon how many death certificates would satisfy the pathologist at the post-mortem table.

However, something can be learned of secular changes in practice by viewing a graph of the trends in death rates from transmissible disease (Figure I). There is much cause for self-congratulation in this picture; but the general practitioner has played but a small part in it; how small this part is today I can best illustrate by quoting the figures for notifiable disease in the city of Malvern, with a population of 50,000, for the year 1950:[1]

Tuberculosis	22 cases
Scarlet fever	21 cases
Poliomyelitis	5 cases
Diphtheria	1 case
Cerebro-spinal meningitis	2 cases
Amœbic dysentery	2 cases

In all there were 53 cases for the year—that is, a little more than one case for each of the doctors practising about the district.

In the minds of many medical practitioners notifiable disease and preventible disease are almost synonymous terms, and from these low figures confusion of ideas and lack of interest in prevention may arise.

The next graph (Figure II) has, at first sight, a less pleasing aspect, and it is around the truth or otherwise of these trends that endless controversy has been waged. Whether they represent a true rise in the incidence of the diseases or a rise in the diagnosis of them, or again a rise in the number of people in the susceptible age groups only, we will not attempt to unravel fully at the moment.

However, the next graph (Figure III) shows clearly that much of the rise must be due to the aging of our population; this picture might serve also as a birth certificate for the new subject of geriatrics. A private practitioner may get a rather distorted view of this graph, because the age constitution of his own practice tends to rise with his own

[1] Read at a meeting of the Section of Preventive Medicine of the Victorian Branch of the British Medical Association on July 2, 1951.

[1] Abstracted from the Victorian year book.

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(1) Batterman, R. C., Beck, G. J., and Lesser, G.: Am. Jour. Med. Sc., 214:268, Sept., 1947.
(2) Reznikoff, P., and Goebel, W. F.: Jour. Clin. Investigation, 16:547, July, 1947.
(3) Holly, G. R.: Bull. Univ. Minnesota Hosp., 20:475, Apr. 22, 1949.

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age and independently of the rise in the age constitution of the population at large.

We must now turn from the rather impersonal official records for a while to those of some individual practices, reminding ourselves of the many fallacies that may present themselves.

Table I sets out the content of four practices; the first three are recent and the fourth, which I show for its antiquarian interest, is over 100 years old. The figures are taken in part from J. Pemberton (1949).

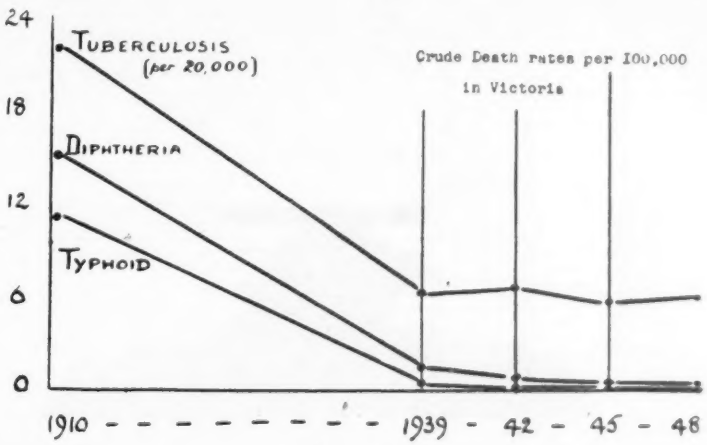


FIGURE I.

A few points of interest appear: there is much less respiratory disease in Australian practice than in England; accident cases vary very widely, probably as a function of location. It is impressive to note the diarrhœa and dysentery case rate of 100 years ago. Any doctor of today seeing these conditions in every eighth case would believe himself to be in the presence of a pandemic.

Every month some thousands of people are warned that they will be interviewed in a succeeding month as to their experience with sickness and invalidity and the medical consultations arising therefrom. I need not say that the individuals are carefully selected by class and locality, so that a balanced picture conforming to the best statistical principles will be produced.

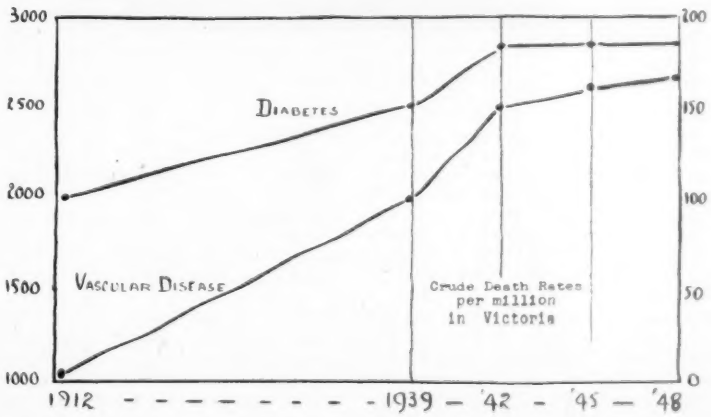


FIGURE II.

Returning to the first three columns of recent figures, I confess that they throw very little light on the hour-to-hour problems with which the practitioner is grappling, or on what kind of education would best fit him for the task, and certainly none whatever upon what measures in prevention are necessary. A minister of health might gather from this table how many tons of *Pulvis Alkalinus* to order for the year, but little else. No single patient presented himself in these surveys for a routine examination or sought guidance upon the preservation of his health; this surely is a point of great significance.

These private analyses are disappointing, and obviously we must have fundamental changes in method if we wish to express statistically and in relation to prevention the nature of our Australian problems. Therefore, abandoning the private practitioner to his lone-handed struggle, we can now turn to the most serious work at present available; I refer to the social survey of the English Registrar-General, which has been carried out monthly since 1944.

In Table II I have sorted out the Registrar-General's figures in order of increasing magnitude as a cause of seeking medical advice. The titles of each group are in accordance with the "International Statistical Classification of Diseases, Injuries and Causes of Death", published by the World Health Organization in 1948, and I must refer in a little detail to the contents of some of the larger groups. Before I do so, however, we can reject at once

many of the groups on the plea that their proper management does not depend particularly upon the definition of general practice which we set up earlier—namely, a moral as well as a physical approach.

One can imagine a practice to be still substantially a family one from which "eyes", "ears", "veins", "sore throats", "injuries" and even "colds and influenza" had been excluded (though with considerable financial loss to the proprietor). It will be admitted that a well-trained nurse or orderly or even a specialist could deal with most of them without real loss to the patient.

Defining the other major groups according to the World Health Organization, we find that "other stomach" includes such disorders as gastritis and functional conditions of that organ. "Skin" and "heart and arteries" are self-explanatory, and "other respiratory" includes sinusitis, laryngitis, pneumonia and such like.

Finally—and this is the point that I have slowly been endeavouring to attain—of these 11,000 odd departures from normality, more than 3000 fell under the heading of "ill-defined symptoms".

If the experience of the Australian population was similar to that of the English sample, we would have to deduce that every month in this country some 3,000,000 people were in some measure "dis-eased". If these figures convey nothing else, they may explain the prosperity of the pill manufacturers and the public appetite for popular works on medical matters.

However, my object in bringing this massive group of "ill-defined symptoms" forward for study is a more serious one, and it is no less than this: since all the other groups are made up of defined or well-recognized and established disorders, does this mass of ill-defined symptoms represent the breeding ground of the slow endemics found in family

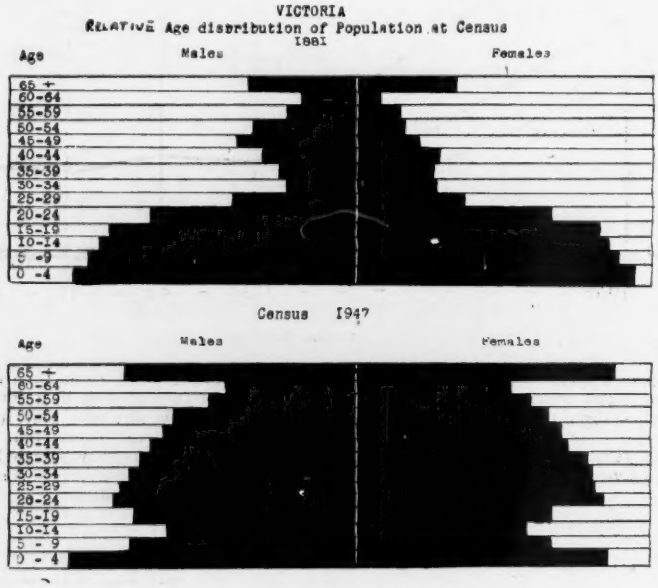


FIGURE III.

We are left with the following two groups, which together contribute more than one-third of the total consultations. (i) The group "ill-defined symptoms" includes headache, disturbances of hearing, vertigo, insomnia, loss of appetite, heartburn, flatulence, frequency of micturition, undue fatigue, depression, debility and many more. (ii) The group entitled "other defined illness" includes pregnancy, tuberculosis other than pulmonary, infective and parasitic diseases, certain nerve disorders and many other clinically well-established and recognizable diseases.

We have not yet exhausted the Registrar-General's pertinacity, for he produces another monthly table which sets out under the same headings as the previous one, not the number of related consultations with a doctor, but the number of occasions during the month under review upon which the subjects were or thought that they were ill, without reference to whether they did or did not consult a doctor.

It will be recalled that the total number of consultations recorded for 7000 members of the public was 3701, and this figure seems high; but it shrinks considerably when compared with the total number of "complaints" voiced by the same group in the same month—it was 11,424 with a total of 7760 days of invalidity (incidentally there have been only local and unimportant changes since the introduction of the National Health Service).

practice? Is it the raw material of the preventive medicine of the future? In plain language, are those who suffer from ill-defined symptoms this year the sufferers from well-defined diseases in subsequent years? And if so, what proportion of them is amenable to preventive measures?

I realize that I am posing one of the most complex problems in vital statistics, and also one of the most interesting, and that it is, perhaps, over this field that the two halves of medicine could most usefully join hands. It is beyond the scope of this address for me to set out the protocols for such a research.

So far I have adduced no proofs of my propositions, and we must now turn to that branch of medicine which biologists in other fields call "a prostitution of science by the practice of conjecture"—namely, clinical medicine.

I have selected at random a few cases in which I happened to be familiar with the personal and family histories, and although the three cases all ended in similar physical changes, I could if I had space, describe many more associated with similar histories and symptoms but quite different terminal diseases.

Case I is that of a Mr. L., a solicitor, whom I knew for more than twenty years—first as the father of two children that I brought into the world and then as a member of our "ill-defined symptoms" group. He came to me in 1936 with palpitations and insomnia, which had started after a level crossing accident in which he, the driver, had escaped with-

out a scratch, and the passenger, his friend, had been killed. He denied that this had troubled him at all, but eventually explained that he was worried over an affair that he was having with a woman who kept a boarding house; she also was a patient of mine and had had her Fallopian tubes removed—I judged his interest to be something less than Platonic. He consulted me intermittently until the outbreak of war without any notable change in his symptoms or improvement in his morals, and I did not see him again until 1946. He then recounted his history of the years between; he had joined the air force and did not complain much until 1944, when, growing tired of a wandering life, he reported himself and was labelled "effort syndrome"; thence he was sent to a psychiatrist, was re-labelled "anxiety neurosis" and was discharged from the service. I could find nothing further, nor could an electrocardiograph; but twelve months later he dropped dead while playing tennis, then aged forty-seven years. He passed into the hands of the coroner and was certified as having died from "coronary thrombosis".

TABLE I.

Complaint.	England.	America.	Australia.	Sheffield, 1847.
Respiratory disease ..	33·0%	12%	18%	30·0%
Digestive disease	8·0%	30%	10%	12%
Cardio-vascular disease ..	7·6%		15%	1·5%
Mental ill-health	6·5%	Not noted	7%	9·5%
Obstetrical and gynæcological conditions	6·0%	8%	10%	—
Chronic rheumatism ..	5·0%	Not stated	3%	12·5%
Accidents	5·0%	10%	1%	—
Skin conditions	2·9%	5%	8%	1·5%
Diarrhœa and dysentery ..	—	—	—	13·0%

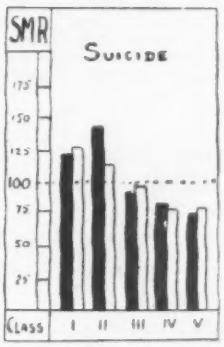
TABLE II.

Illnesses and Injuries Sustained by 7000 People over a Period of One Month According to their Nature and the Number of Medical Consultations Involved.

Disorder.	Number of Cases.
Dental disorders	12
Ear and mastoid	49
Veins	55
Sore throat	56
"Other digestive"	56
Mental disorders	63
Tuberculosis of lungs	72
Ulcer of stomach and duodenum ..	98
Eye	108
"Other stomach"	140
Skin	166
Heart and arteries	236
Injuries	240
Rheumatism	303
Colds, influenza	384
"Other respiratory"	450
"Ill-defined symptoms"	579
"Other defined illness"	634
Total	3,701

Case II is that of Mr. M., a paunchy little man, now aged forty-five years. He married out of his faith, thus alienating the sympathies of his own family and failing to gain those of his wife's. He complained of flatulence, palpitations and insomnia over a period of years, but all my diagnostic efforts and those of several consultants revealed no abnormality. In 1948 he moved into a fine new house and spent the week-ends carting garden soil; at the same time he had many financial anxieties due to his hostile family, and this picture preceded the occurrence of a number of typical anginal attacks, which he can control only by severely restricting his efforts.

Case III is an interesting one because it illustrates many points, including the long incubation period of physical disease. The story began twenty-four years ago, when I sat at table with the patient's parents; they were very



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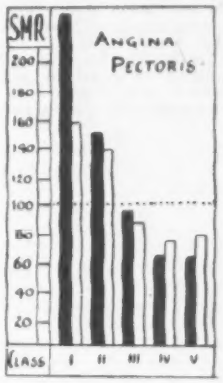

FIGURE V.

gracious to me throughout dinner, but never addressed each other, and I learned that they had not done so for years. Providence revenged this unnatural conduct on their three

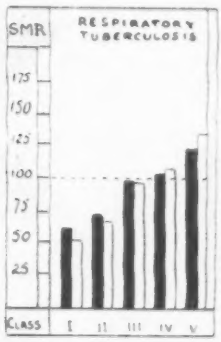

FIGURE VI.

children, one of whom spent his later years in mountaineering in a vain attempt to climb out of his immature personality, the daughter became an embittered spinster, and the

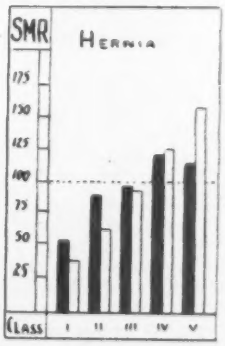

FIGURE VII.

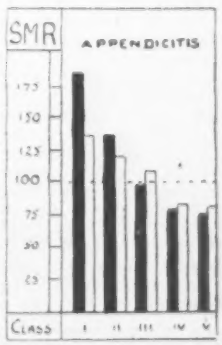

FIGURE VIII.

third one, my patient, grew up with an inferiority complex of no mean order. He strove to overcome it by driving about in costly imported sports cars accompanied by never less than two Alsatian dogs and a distinguished member of the "Tivoli" ballet. As might be expected, he made an unwise

marriage, and a few years later began consulting me for various pruritic skin complaints. When I visited him, I found that his bedroom and that of his wife were on different floors, and upon my questioning him it appeared that his wife had ceased to have relations with him on account of some unpleasantness arising out of his attitude to women. He complained of insomnia and of inability to concentrate on his work. The war came and he joined the air force, and although he was aged thirty-nine years, he was appointed to quite an active post. After a year in the tropics he was returned to the mainland to sedentary work. Here he flourished for a while, but he became very unpopular with his fellow officers, and after an altercation with his commanding officer had a classical coronary episode and was discharged from the service. He still survives, but has added asthma to his other complaints.

Everyone who has been in practice long enough will be able to multiply a hundredfold these somewhat Rabelaisian stories and link them up with the onset of disease.

Two things appear from the recital of these cases; the first is that long-continued emotional disorder is a common accompaniment to physical disease, and the second is that although I seemed to have ample opportunity, I did little or nothing to prevent its onset.

If we admit that emotion was a cause of disease, then the psychiatrists must tell us how 8,000,000 people can be taught among other things how to understand themselves, their parents and the true import of the Ten Commandments. There is at present no mechanism whatever within the structure of medicine for this stupendous task.

I have now apparently put myself into the awkward position of having suggested that "stress" is the commonest factor in producing "ill-defined" symptoms and thereafter "well-defined" disease; it is some comfort that I find myself in the company of Hans Selye and his general adaptation syndrome (which I do not understand), and of the Christian Scientists (with whom I cannot agree).

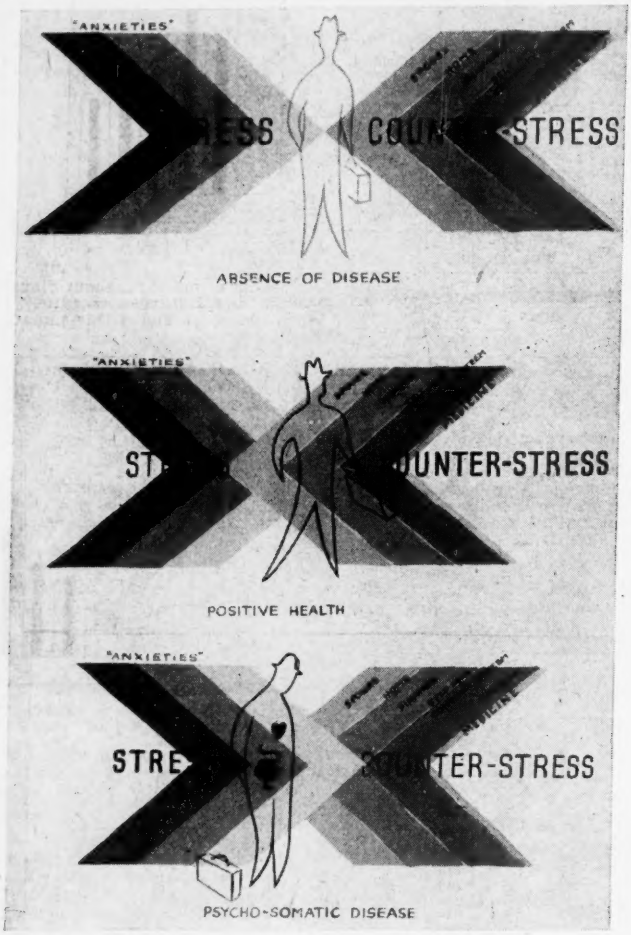

FIGURE IX.

In an effort to maintain my proposition I am going to turn to another branch of vital statistics—namely that which sets out mortality rates by social status.

Before doing so I must attempt a home-made definition of the word "stress"; this term implies all those influences, both physical and mental, which by their weight evoke either or both mental and bodily responses of an unfavourable nature. By mental stress I mean a state of unnatural emotional tension, which may or may not be appreciated as such by the individual concerned. This tension, we believe, has remote effects upon hormones and pressor substances in the circulation and ultimately upon the tissues bathed by them. It is reasonable to suppose this state of affairs is more likely to arise in a cultivated and sensitive mind crowded with ambitions, inhibitions and fears for the

present and the future; that is to say in a person belonging to Class I of the Registrar-General's five social groupings. What proof there is of this I know not, unless it is that "uneasy lies the head that wears a crown".

According to current thought, these states of tension achieve the status of a "death wish", which is ultimately converted into an illness. If this is so, then I imagine that the archetype of all "death wishes" would be suicide, and the next graph shows the social distribution of this fatal "ailment" (Figure IV).

It is apparent that self-destruction is commoner in the classes with more complicated minds, but not to a very striking degree. Perhaps the wish is more often entertained, but social convention inhibits it.

The next graph (Figure V), which is that of the social distribution of *angina pectoris*, shows it to be almost the prerogative of the professional classes. If this disease is a "converted death wish", why should the upper classes break their hearts so much more often than the lower classes? It must be a much more complicated process than committing suicide in one of the conventional ways.

Let us now turn to pulmonary tuberculosis, a bacterial disease of which every aspect has been intensively studied for decades. Of recent times many articles have been published ascribing its onset to emotional stress. However, the graph (Figure VI) lends little support to this view, though in my own small experience I believe it to be a decisive factor. Possibly the graph is fallacious, because environmental factors and not emotional factors determine the fatal upshot, but have less to do with onset. In other words, we cannot interpret this graph until we know as much of the social distribution of the infection as we do of the distribution of the deaths.

If there is anyone who maintains that poverty and its attendant physical stress are the preponderant factors in a fatal upshot to tuberculosis, let him gather comfort from the next graph, which is that of death from hernia (Figure VII). There would seem to be little doubt that physical stress and neglect are the underlying factors here.

Before he is quite assured of his comfort, let him view the graph of death from appendicitis, in which the distribution is quite reversed (Figure VIII). Is this a psychosomatic disease? Do more of the professional classes suffer from it than the working classes? Is it better to be operated on in a public hospital than a private one? A dozen such questions come to mind, for which there is at present no satisfactory answer.

I am not satisfied that I have proved anything, except that there are many things important to the future of medicine that we are not taught at school and that are hard to learn elsewhere.

I must apologize for the elementary nature of the next pictures (Figure IX). They were made in an attempt to represent graphically and in brief the means of securing "positive health", for which term I can find no satisfactory written definition. The third picture of this set describes, I believe, the state of the patient who has spent some time in the "ill-defined symptoms" group. Few of the major "counter-stresses" are capable of being influenced by the doctor, and in any case the patient rarely reports until the picture has become irreversible.

Conclusion.

My conclusions will be brief. Preventive medicine in general practice requires an ordered survey of "stress" and "counter-stress", and consequently a close study of the family. To carry out this research and bring family medicine abreast of other branches of practice a well-equipped and staffed centre is necessary.

Reference.

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FATAL STINGS TO NORTH QUEENSLAND BATHERS.

By H. FLECKER,
Cairns, North Queensland.

IN 1945 attention was drawn (Flecker, 1945) to a large series of injuries to bathers in North Queensland, caused by some unknown marine object. McNeill and Pope's contribution in 1943 was quoted; but quite apart from these non-fatal cases, in many of which the stings were very severe and did not produce a weal of any kind, other cases, ending fatally and with extensive weals, occurred from time to time. There does not appear to be any reference in the Australian literature to any such cases, despite the consistency with which these fatalities recur; death may take place within half an hour or so after the respective victims, often robust young people of either sex, have been stung, and generally with such dramatic suddenness that in practically every case medical attendants arrive too late to observe such subjects during life. The result is that even today not a single case with clinical notes of any kind is available in the Australian medical literature. However, friends, attendants and bystanders have supplied information for publication in the lay Press. There is, of course, the usual post-mortem examination, and a limited amount of information is available from this source.

Literature.

Most of the relevant literature comes from the Philippines. In 1928 Wade, in a collection of reports on severe jelly-fish stings, records the case reported to Old in 1907 by Kindleberger from Olongapo (Old, 1908), the only fatal case he had known to be reported by a physician. The patient, a Filipino boy, aged fourteen years, was restless and became practically unconscious, but improved under treatment. His father took him home, when on sight of the water he "again" became hysterical. He was reported to have evidenced cardiac and respiratory failure, dying in spite of stimulants three and a half hours after being stung. The species of jelly-fish was not known, but Light believes it to have been *Dactylometra cinquecirrha* L. Agassiz, a dangerous and feared species common in Manila Bay at certain seasons.

Wade (1928) gives with much detail an instance of a fatal sting, which he summarizes as follows. The subject was a well-developed, healthy young man, aged nineteen years, with only slight remaining evidences of leprosy, who, whilst working waist deep in a mangrove swamp, called out in distress to fellow workmen near by that something had bitten him. He quickly collapsed, breathing with difficulty, and died within a very few minutes. No mark suggestive of a snake bite could be found, nor any other abnormality except livid purplish markings ascribable only to contact with a large, long-tentacled jelly-fish. The head was livid. The lungs were distended, did not collapse, and contained much frothy serous material that had escaped from the alveolar capillaries. The right side of the heart was full, the blood being fluid and dark. The viscera were congested, especially the kidneys, in which parenchymatous injury was present with albuminous material in the glomerular capsules. The fatal outcome was too sudden to be ascribed to the poisoning alone. Definite evidence of *status lymphaticus* was found, and it is probably because of the peculiar instability known to exist in this condition that the unquestionably severe shock of the jelly-fish sting induced sudden death. The case is of interest not so much because death occurred as because an opportunity was presented to observe the anatomical changes in acute jelly-fish poisoning.

Wade (1928) adds a note that Dr. M. Carreon, Assistant Chief, Culion Leper Colony, during a trip to Leyte made since he had written the foregoing account, learned from the local district health officer of a recent case of very rapid exitus following a jelly-fish sting. A male of unknown age was said to have been bathing with others about 100 metres from the water's edge. He showed immediate signs

of respiratory distress and was dead by the time he was brought ashore. No autopsy was made.

The foregoing three instances are the only fatal cases which can be found in the literature, although somewhat similar reports are available in which the outcome has not been fatal. Moreover, the post-mortem notes on one of the fatal cases are the only ones discoverable. It appears that the inhabitants of the Philippines are aware of the existence of fatalities which take place from time to time. Even in the cases recorded the identity of the organisms responsible is not definite, as the actual specimens do not appear to have been secured.

In most cases in North Queensland the main information is furnished by the newspapers. The *Cairns Post* for January 21, 1937, has the following headlines: "Tragic Death. Man-o'-war Victim. Tentacles Round Body". Underneath appears the following account from Deeral, 27 miles south of Cairns. (This is regarded as Case I.)

> Within eight minutes of being stung by the deadly Portuguese man-o'-war while bathing at Bramston Beach (40 miles south of Cairns), 12 miles from Mirriwinni, this morning, D.W.T. (19) collapsed and died. Young T., who had been holidaying with his aunt at Mirriwinni, was in the water with a friend. They waded out waist deep and almost instantly the man-o'-war tentacles became wrapped around the victim's abdomen. His companion helped to free him and assisted him to the shore. T. staggered about 50 yards and collapsed. He was dead within eight minutes. . . .
>
> Dr. T. W. Carroll, then at Babinda, who conducted the post-mortem examination reported as follows: 21.1.1937. It was a well-developed muscular body—post-mortem staining of the back and buttocks had taken place. Across the skin of the abdomen and chest and also extending around the back of the chest there were a number of dark red bands. These varied in size up to about a quarter of an inch in width. Over some of them, the skin was broken and sand was adherent to the skin abrasions. Blood-stained froth was present in the mouth, nose and bronchial tubes. Apart from the heart and lungs, the man was otherwise normal. The heart was slightly enlarged—there was a fatty infiltration of the myocardium and the mitral valve flap showed some chronic inflammatory nodules. The valve ring would admit three fingers.
>
> Throughout both lungs there was an excessive amount of fluid present. They were both waterlogged and frothy blood-stained fluid could be expressed into the bronchioles.
>
> The history of the case showed that the previous day the man had been swimming at the nearby beach with a couple of companions. He was emerging from the water when he became encircled by the tentacles of what was described as a Portuguese man-o'-war. He complained of severe burning pain at the points of contact and his companions assisted him to scrub it with sand. The pain in his chest continued and he collapsed and died in seven minutes from the time of attack. Although I made efforts to obtain a description of the offending fish, I have been unable to do so yet.

It appears that previous to this instance other similar fatalities had occurred at intervals along the North Queensland coast and these were invariably attributed to the effect of the stings of the *Physalia*, popularly known as Portuguese man-o'-war or bluebottle. Mr. Heber A. Longman, then Director of the Queensland Museum, reports that this is the fourth case with fatal consequences occurring in Queensland during the previous thirty years. No other organism is considered or even thought of. However, in other regions, particularly in New South Wales, where such siphonophores are particularly common and people are stung by the hundred, fatalities are virtually unknown. The obsession that the *Physalia* is the agent responsible for these fatalities is practically universal among the general public as well as among the medical profession in these parts, and thus efforts to determine the real culprit, which dispenses its venom with a lethal effect comparable to the most dangerous of snakes, are seriously hampered. The result is that although very great interest, for instance, is taken in shark tragedies, comparatively little is manifested in the rapid deaths following stings from these as yet unknown or at least uncertain agents, and as yet no real clinical notes on such disasters have appeared in the Australian medical literature at least.

As late as 1945 Frachtman and McCollum, of the United States army, report a case under the heading "Portuguese Man-of-War Stings: A Case Report", although this referred to a victim of another jelly-fish and probably not the *Physalia*.

I am indebted to Professor E. Ford, Director of the School of Public Health and Tropical Medicine, Sydney, for an account of a tragedy at Darwin, of which, although it is well known at the school and elsewhere, so far the clinical notes have never been published in any medical journal. The incident occurred on March 13, 1938. (This is regarded as Case II.)

> The victim, a half-caste boy aged 12 years, was bathing in the local swimming baths. He dived into the water and when he came to the surface was distressed and just able to reach the beach. He said that he had been stung by a jelly-fish. He died shortly afterwards, but the exact lapse of time between sting and death could not be ascertained. Another boy swimming with him was also stung, but without serious results. The medico who attended stated that there were areas of weals over the left arm, left side of chest and neck, and right hand and arm. Since the boy was dead when he arrived, he was unable to record pulse rate, respiration, etc.
>
> Witnesses stated that the jellyfish was still sticking to the boy when he staggered to the beach.[1] This specimen was submitted to the Australian Museum and identified as *Chiropsalmus quadrigatus* Haeckel, commonly known as the "sea wasp".

It is a member of the order Carybdeidæ, class Scyphomedusæ (true medusæ or jelly-fishes). The members of the Carybdeidæ are inhabitants of the warmer waters of all oceans, and none of them has been found in the polar seas. Most of them have been taken in the open ocean, but they are also found swarming in harbours and other places near land. When young they appear to be bottom-living forms, but they usually come to the surface when mature. The numerous flexible hollow tentacles are covered on the surface with rings of nematocysts (stinging cells), the power of which is so great that the name "sea wasps" is commonly given to these medusæ.

Mr. F. A. McNeill, of the Australian Museum, Sydney, reported as follows:

> The advent of the specimen in the swimming baths at Port Darwin is intensely interesting, and more particularly because of its association with the death of a half caste boy. No previous record of a sea wasp medusa in Australian waters can be traced in literature, and as far as can be ascertained, no warning of any death dealing properties has yet been published. However, in keeping with the recent Press report of the above tragedy, the erroneous name Portuguese man-o'-war has been associated with stories of tragedy and intense suffering told to museum officers travelling in North Queensland, particularly between Mackay and Bowen. Not one of these accounts included a reference to the well-known float or gas-filled envelope so characteristic of the Portuguese man-o'-war or bluebottle common to local surfing beaches, and a type of medusa was suspected. The present evidence practically proves the earlier conjecture.

The specimen of *Chiropsalmus* is in the museum of the School of Public Health and Tropical Medicine at Sydney.

On April 11, 1950, Mr. McNeill added that *Chiropsalmus quadrigatus* Haeckel was a species common in the East Indies (including the Philippine Islands) and nearby Indian Ocean waters. The typical four sea wasp tentacles quickly branch into finger-like processes after leaving their bases, and these taper off into numbers of fine tape-like strings. Although it is suspected that the species occurs off our north-eastern coast, there is no material proof of this. However, Mr. McNeill's assistant, Miss Elizabeth Pope, writing later (January 17, 1951) of a series of specimens sent from Cairns for determination, stated that one collected at Turtle Bay, Cape Grafton, on January 3

[1] Compare this statement with the description of the case at Bramston Beach (Case I).

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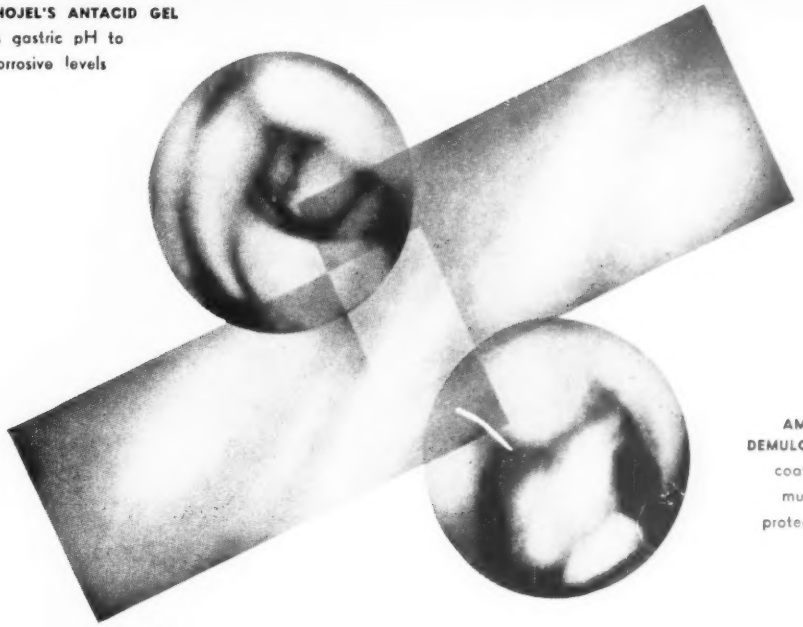

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by R. McKuage was definitely a sea wasp and believed to be actually a juvenile form of *Chiropsalmus quadrigatus*.

Dr. Cecil Cook, of the School of Public Health and Tropical Medicine, Sydney, commented on September 22, 1939, as follows:

> The nature of the objective signs of injury were such as to suggest that the sting was occasioned by the tendrils of *Physalia*, but most Queenslanders held the view that the jellyfish could not cause a sting of this nature. It had to be recognized, however, that *Physalia* was not prevalent in Port Darwin—I myself lived there twelve years on the waterfront and never saw a single specimen. The most confirmed advocates of *Physalia* as the cause of this sting ultimately became convinced that the agent was actually a jellyfish prevalent in those waters which in itself had tendrils similar to those of *Physalia*.

Several other victims have died since under similar circstances on North Queensland beaches, but it is regretted that adequate notes of some of these are not available. One of these included the wife of a physician in the Tully region.

Dr. G. H. Moore, superintendent of Townsville Hospital, gives details of another fatal case with date December 13, 1941 (Case III).

A boy, aged seven and a half years, previously well, had been swimming and left the water quite well. However, he ran back into the water up to his knees, then ran out again crying. After running 50 yards he collapsed and could just manage to say that he had been stung on both legs. His mother noticed linear weals on the legs and the strings of what she called Portuguese man-o'-war. The boy died soon afterwards. The boy was dead upon his arrival at the Townsville Hospital and had large weals becoming purple on the legs, just as if something had been wrapped round the legs. The post-mortem examination was carried out by Dr. L. Halberstater, who reported bronchitis present and some interlobular pleurisy in the left lung. Large weals were present on both legs, but no other abnormality was found.

A note from Dr. Moore added: "I'm afraid this case will not help you very much as it implicates the *Physalis*."

Another case was as follows (Case IV).

B.McN., a boy, aged ten years, was standing close to the shore at North Mission Beach (Tully region) at 4.30 p.m. on December 14, 1949, when he suddenly screamed agonizingly and called "shark". The father close by carried him on to the beach. The child was sweating profusely and collapsed within one minute. The father noticed that his eyes were much reddened, and his pupils oval and dilated. The boy gave one or two convulsive movements and frothed a little at the mouth. He then quickly became blue about the face and chest. The father maintains that the boy was dead within three minutes of being stung. He said that the weals about both legs—there were none above the knees—were covered with sticky substance which was removed during the application of picric acid, spirits and olive oil preparations about one minute prior to the child's apparent death. The boy was said to have been of slim build and well nourished. When first examined by Dr. D'Arcy O'Connor, of Tully, at 5.10 p.m., he was dead and his face and body generally were cyanosed. Dr. O'Connor reports on the post-mortem examination that nothing worthy of comment was found. Some watermelon was noted in the œsophagus and pharynx, and the larynx and trachea were clear. The stomach also contained a small amount of watermelon.

Dr. O'Connor contrasts with the above-mentioned patient another patient examined on the same day, a girl, aged sixteen years, brought in from Cardwell Beach, who was marked with weals all over her buttocks and extensively over both thighs and legs—much more so than the boy. She, after being painted with picric acid preparation, was in no pain at all. She left hospital next day. Careful comparison of the weals on both patients revealed no difference whatever. The width of the weal and the zig-zag markings were the same. The girl was dark-skinned, whilst the boy had very fair hair.

I am indebted to Dr. J. K. Joyce, of Townsville, for the report of still another fatal case from that region (Case V).

The victim was J.G., a well-grown girl, aged fourteen years, who on some date prior to April 10, 1951, was swimming in the Kissing Point baths, which are lightly enclosed with torpedo netting. She was at the deep end some twenty yards from the enclosure when she began to scream. Other swimmers who went to her assistance discovered that she had tentacles on her left arm and on both lower extremities. She said that she could swim ashore, but collapsed before landing, and was apparently dead when lifted to shore. There is no clear description of the organism which attacked her, and none of it was available for examination. The only thing to be discovered was that it had long thin tentacles. The post-mortem examination revealed very little. The left upper extremity, the left lower extremity and part of the right lower extremity were criss-crossed with red marks, about eight millimetres in width, and raised about 0·8 millimetre above the surface. Examination of the upper surface of the brain revealed very slight œdema, the thymus was atrophied, and death was positively not due to drowning.

Discussion.

Although only one case of a fatal sting from a marine organism with details, together with post-mortem notes, can be discovered in the medical literature, details of five others are recorded, four from North Queensland and one from Darwin; one came from Bramston Beach in the Babinda region, another from North Mission Beach in the Tully area, and two from about Townsville. Apart from these, other similar cases have been recorded in the lay Press from time to time.

The ages of the victims, all children and young adults, ranged from seven and a half to nineteen years. The physician's wife, details of whose death are not available, was considerably older.

Although Wade attributes the death of his patent to *status lymphaticus* with post-mortem appearances to support this view, there is nothing in the Australian series to suggest this as the cause of death. The post-mortem notes of the last victim from Townsville expressly state that the thymus was atrophied, thus ruling out the likelihood that such a condition was present in her case at least.

The symptoms appear to be due to shock, for none of the victims seem to have survived more than ten minutes after having been stung. The several post-mortem examinations all show considerable respiratory changes, such as water-logging of the alveoli in the lungs *et cetera*. Perhaps these are anaphylactic in character, for death was in every case too sudden for any detailed clinical examination by a medical practitioner. Also in every case weals have been present, and this fact alone has caused medical attendants to conclude that the agent responsible was the *Physalia*. This obsession has seriously limited interest in the subject and resulted in neglect of any investigation into its cause. In no case has the well-known blue air-bag of the *Physalia* been seen in connexion with any of the victims, and when a description of the organism has been given, as at Bramston Beach, it hardly resembles that of this jelly-fish at all. At Darwin alone has the agent responsible been secured and identified as *Chiropsalmus quadrigatus*; but there is nothing to indicate definitely that the North Queensland victims were stung by the same species. One specimen—not connected with any casualty—was collected at Turtle Bay in the Cairns area, and determined as this species, the first ever collected in Australia outside Darwin to be identified as such.

The casualties all occurred during the summer months, the earliest being on December 13 and the latest some time before April 10.

Summary.

1. Details are given of the only case with post-mortem examination which can be found in the literature of stings from a marine organism ending fatally. Five others—one from Darwin and four from North Queensland—are added.

2. The symptoms resemble those of anaphylactic shock. All subjects showed weals similar to those produced by *Physalia pelargica*.

3. The cause was certainly not *Physalia*, but probably some carybdeid organism, such as *Chiropsalmus quadrigatus*, which was secured and was certainly the cause of

death in the Darwin case. Perhaps an allied organism is responsible for some of the other deaths, but investigation is hampered by the obsession that the *Physalia* is the organism responsible.

4. Post-mortem examinations reveal severe changes in the respiratory system, such as waterlogging of the pulmonary alveoli.

5. Other victims with weals stung on the same day as the patients who died in the Philippine Islands and also at Darwin, and one brought into the Townsville Hospital from Cardwell, had no serious symptoms at all, the weals of the last resembling very closely that of the fatally stung victim from Kissing Point, who died the same day.

Acknowledgements.

I am much indebted to Professor E. Ford, the Director of the School of Public Health and Tropical Medicine, Sydney, for much information, and particularly for microfilms of numerous articles from the relevant medical literature not otherwise available in North Queensland. I am grateful also to a number of others who are specified in this contribution and who furnished details and reports of cases, some with post-mortem notes.

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CHEMOTHERAPY IN THE RETICULOSES.[1]

By R. A. MELICK,

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IN the last ten years the medical profession has been greatly interested in the search for a drug to cure cancer, and several promising substances have been tested. So far no cure has been achieved, but temporary relief has been observed in some conditions, particularly those affecting the reticulo-endothelial system.

Since 1947 we have had the opportunity of observing, at the Royal Hobart Hospital, the effects of some of these substances, and although our series of cases is small, it was thought that a review of the results to date would be interesting.

The substances used have been classified according to their mode of action, as follows (Karnofsky *et alii*, 1950): (i) agents acting as general cell poisons—for example, nitrogen mustard, P^{32}, urethane; (ii) agents acting as metabolic antagonists to substances essential to cell growth—for example, folic acid antagonists; (iii) agents injurious to specific cells—for example, I^{131}; (iv) agents changing the environment of hormonally dependent cells—for example, œstrogens and androgens. All these substances are capable of producing profound changes in normal tissues and must consequently be used carefully. They do not act specifically on the malignant cells, but either interfere with the physiological processes in growing cells (and therefore mainly in the malignant cells), or affect particular dependencies or functions retained by the neoplastic cells from their parent tissue.

At the Royal Hobart Hospital we have used agents in the first and fourth groups, while one of our patients has received I^{131} here at Launceston; we have had no experience with the folic acid antagonists. In this review our experiences with the first group only—namely, urethane, nitrogen mustard and radio-phosphorus or P^{32}—are considered.

Urethane.

Urethane, or ethyl carbamate, has the formula shown in Figure I. After experimental work on the growth-inhibiting effects of urethane on animal tumours, it was decided in 1943 to test the drug in advanced cases of malignant disease in man. In some of these cases a fall in the leucocyte count was observed, and this suggested the trial of urethane in the treatment of patients suffering from leuchæmia. This was commenced in 1945 by Dr. Edith Paterson and associates in Manchester and London with promising and encouraging results (Paterson *et alii*, 1946).

Urethane may be administered orally or by intramuscular or intravenous injection. Dosage varies greatly, depending upon the response of the patient. Toxic effects are nausea and sometimes vomiting, but the administration of the drug can be continued. It is capable of producing bone-marrow aplasia, with depression of red and white cells and platelets; thus frequent blood examinations are essential.

Since 1948 urethane has been used in seven cases. One of these is not considered here, as death occurred after only four days' treatment; death was not due to urethane. Four were cases of chronic myeloid leuchæmia, one was a case of chronic lymphatic leuchæmia and in one the condition remains undiagnosed.

For the past eighteen months urethane has been administered orally as a sweetened elixir (two fluid drachms—one gramme), which patients have found palatable and have tolerated well. We have not used preparations for intramuscular or intravenous injection. Dosage has been controlled by blood count, usually fortnightly, sometimes weekly, but in no case at longer intervals than four weeks. When the white cell count approached normal, therapy was stopped and it was recommenced as the count rose. Most patients thus had intermittent courses of treatment, though at times a small dose was continued for several months. When the drug was being taken, dosage varied from 0·5 gramme to three grammes per day. Nausea was invariable when a dose of three grammes per day was taken, but was not complained of with the lower doses. Anæmia and thrombocytopenia were not encountered.

A typical response is shown by Mr. A.T., aged forty-three years. He presented in January, 1950, with tiredness, palpable spleen and a white cell count of 300,000 per cubic millimetre. Examination of a blood film revealed chronic myeloid leuchæmia. Urethane produced a rapid drop in the white cell count, regression of the spleen and a gradual rise in the hæmoglobin value to normal (see Figure II). After the white cell count was controlled he felt perfectly well and continued at full work. He felt a little fatigued in November, 1950, but recovered in the next few weeks. Unfortunately, his condition deteriorated suddenly in April, 1951, and despite blood transfusions, he died before deep X-ray therapy could be administered. Apparently he became resistant to urethane after fifteen months' treatment. In this case, a dosage of three grammes per day regularly caused nausea.

Mr. W.T., another patient suffering from chronic myeloid leuchæmia, was admitted to hospital in June, 1949, complaining of lassitude, weakness and anorexia. An upper abdominal tumour was found at examination, and a provisional diagnosis of carcinoma of the stomach was made. This was apparently confirmed by a barium meal examination, which revealed a filling defect of the greater curvature of the stomach. However, he was "saved from the surgeons" by examination of a blood film, his white cell count being 200,000 per cubic millimetre.

This patient commenced urethane therapy and responded, but was given deep X-ray therapy in August, 1949. His progress can be followed in Figure III, which shows the periodic rise in white cell count being combated by increased dosage of urethane. When the white cell count is raised he feels slightly ill, and the tip of his spleen becomes palp-

[1] Read at a meeting of the Tasmanian Branch of The Royal Australasian College of Physicians on September 8, 1951, at Launceston.

able again. On several occasions his blood film has been indistinguishable from that of a normal person.

This patient is still under therapy, and at present, after over two years' treatment, he feels well and has no symptoms, and his hæmoglobin value and white cell count are satisfactory.

A third patient with chronic myeloid leuchæmia has been under treatment with urethane for six months. His hæmoglobin value has risen from 65% to 95%, while his white cell count has fallen from 200,000 per cubic millimetre to 20,000 per cubic millimetre.

These three patients have been classified as responding well to urethane therapy.

Mrs. A.H. aged sixty years, was admitted to the Royal Hobart Hospital in March, 1950, with a white cell count of 162,600 per cubic millimetre, and a hæmoglobin value of 15%; examination of the blood film revealed chronic myeloid leuchæmia. She had been diagnosed in Melbourne as suffering from megakaryocytic myelosis and had been treated for three years with P^{32} and with transfusions of both stored and fresh blood. She was so ill on her admission to hospital that we doubted the advisability of treatment, considering her to be moribund. However, blood transfusions improved her condition considerably, and when these had raised her hæmoglobin value to 85%, urethane therapy was commenced, the dosage being three grammes per day. After one month's treatment, and without further blood transfusions, her hæmoglobin value was 100% (14 grammes per 100 millilitres of blood), her white cells numbered 12,500 per cubic millimetre and she felt very well. Urethane therapy was stopped, and further hæmatological examination two weeks later revealed a white cell count of 3900 per cubic millimetre. This patient left Hobart three months after her admission to hospital and returned to Melbourne, where she died six months later (of pneumonia, according to her daughter). She was well when last examined at the Royal Hobart Hospital.

This patient has been classed as responding moderately.

One patient with chronic lymphatic leuchæmia was given three grammes of urethane per day for seventy-seven days, with no response whatever, his red and white cell counts being practically the same before and after treatment. This patient later received nitrogen mustard therapy, again without benefit.

Another case is included only for completeness; in this case no diagnosis was established and therapy was probably unnecessary.

Mrs. V.R., aged forty-nine years, presented fourteen months ago with a white cell count of 15,500 per cubic millimetre, 99% of these cells being lymphocytes. Sternal marrow examination revealed that lymphocytes formed over 70% of the nucleated cells present. A diagnosis of lymphatic leuchæmia was made and urethane was given, three grammes daily for three weeks. Nausea from urethane in this case was relieved by pyridoxin. When urethane therapy was stopped, her white cell count had fallen to 1650 cells per cubic millimetre, the differential count being normal. Since then she has received no treatment and has remained well. The hæmoglobin value has remained normal, while her white cell count has slowly risen, at the last examination, to 4150 per cubic millimetre, with normal differential count. The diagnosis of lymphatic leuchæmia has been replaced by glandular fever, but whatever the diagnosis, urethane apparently depressed the white cell count considerably.

Nitrogen Mustard.

In the preparation of mustard gas during the last war it was noted that persons exposed to these products in the process of manufacture developed anæmia and leucopenia. This suggested the use of these products in malignant disease, as their greatest destructive action is on growing tissues. There are two compounds in use at present, methyl *bis* (β chloroethyl) amine hydrochloride (known by the symbol HN_2—see Figure I), and *tris* (β chloroethyl) amine hydrochloride.

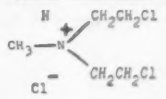
The first clinical application of these compounds was carried out by Gilman, Goodman and others at the New Haven Hospital, Yale University, in 1943 (Goodman *et alii*, 1946). They administered the *tris* compound intravenously in the terminal stages of a variety of neoplastic diseases and observed a striking effect on hæmatopoietic tissues (Jackson *et alii*, 1946).

The drug is given intravenously as a freshly prepared solution in physiological saline. Dosage is 0·1 milligramme per kilogram of body weight per day for four days, and a total of eight milligrammes is regarded as the maximum daily dose. (In some cases in the United States 0·2 milligramme per kilogram of body weight has been given, but this is not advised.) The course may be repeated, but not before one month has elapsed, so as to allow the bone marrow to recover.

URETHANE

Ethyl carbamate

NITROGEN MUSTARD



Methyl-bis (β chloroethyl) amine hydrochloride, or HN_2

FIGURE I.

In carcinoma of the lung the dosage of nitrogen mustard is now being tried as follows: once a week for four weeks, then once each month for life.

Toxic effects described are thrombosis at the site of injection, with a swollen and painful limb, nausea and vomiting, which appear from one to eight hours after each injection and subside in a few hours, and bone marrow depression (leucopenia and anæmia). This bone marrow depression may be fatal. A new drug, triethylene melamine, is now being tested in the United States. This is given orally and is said to cause less vomiting than HN_2 and to exert a similar effect to it.

Mode of Action.

Nitrogen mustard is rapidly removed from the blood and, as has been stated previously, interferes with the growth of susceptible cells. Its actions in many respects resemble those of X-ray therapy, but appear sooner and last a shorter time. It never has more than a temporary beneficial effect.

We have used only the methyl *bis* compound (HN_2) and have treated 11 patients who have received a total of 18 courses. In addition, one patient treated in Melbourne was observed at the Royal Hobart Hospital during the last six weeks of her life. Of these 12 patients, seven suffered from Hodgkin's disease and five from miscellaneous conditions. We have never given a dose larger than 0·1 milligramme per kilogram of body weight and have never repeated the course in less than one month. Although a total of eight milligrammes is said to be the maximum individual dose, one patient received 8·3 milligrammes per day in each of his three courses of HN_2 without ill effect.

No patient received HN_2 unless the white cell count exceeded 5000 per cubic millimetre and the hæmoglobin value exceeded 50% (seven grammes per 100 millilitres). If these standards were not reached, blood transfusions were given first, or the patient was given a transfusion and then discharged from hospital to attend later. All reports I have seen state that HN_2 should be given via a continuous intravenous drip administration of saline. At the Royal Hobart Hospital we have, in every case, injected the drug, dissolved in 10 to 20 millilitres of normal saline, directly into a vein, using a 20-millilitre syringe and a fine hypodermic needle. The incidence of thrombosis has been very low; thrombosis has, in every case, followed a poor venepuncture or trauma to the vein wall by a large needle. By using a fine needle we have been able to use the

same vein for the four successive injections, without any difficulty.

On several occasions I have spilled HN_2 over my fingers; on no occasion have I developed any blisters or other skin lesions, although occasionally a very faint burning sensation has been noted. On no occasion has HN_2 destroyed dressing towels or eaten holes in the sheet.

Vomiting has been a constant feature of our cases and has always been less after the fourth than after the first injection. In patients who have had second courses of HN_2 the vomiting during the second course has been worse than in the first course. Pyridoxine has been given in an attempt to alleviate this, and in the case of two female patients has been very effective. (One hundred milligrammes are given intramuscularly immediately after the HN_2. As this injection is painful, we give with it 0·5 millilitre of 0·2% procaine solution.) In a third case the patient, a male, refused pyridoxine after two doses, as it stopped his vomiting but did not relieve his nausea, which persisted; he preferred to vomit and be rid of his nausea more quickly.

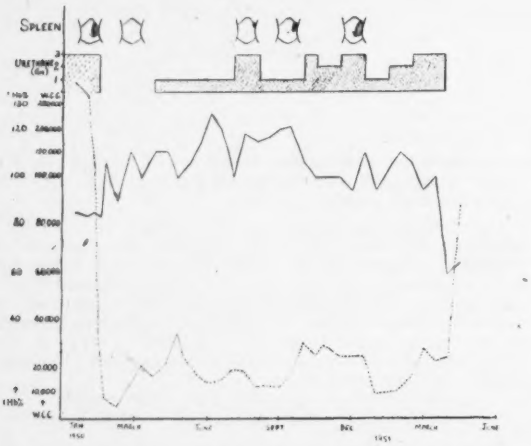


FIGURE II.
A.T., a male patient, aged forty-three years.

In all our cases the white cell count has fallen as a result of HN_2 therapy, but only in two cases has it reached dangerous levels.

The first of these patients, Mrs. J.G., aged thirty years, was suffering from advanced Hodgkin's disease of eight years' duration. She was admitted to hospital in November, 1949, with a white cell count of 1200 per cubic millimetre and a hæmoglobin value of 48%. HN_2 therapy was not advised in view of her leucopenia and anæmia, so, after blood transfusions had doubled both these figures (hæmoglobin value 95%, white cell count 2400 per cubic millimetre), she was discharged from hospital. She was readmitted to hospital two months later, when her white cell count was 6700 per cubic millimetre, so HN_2 was administered. This depressed her white cell count to 2700 per cubic millimetre, but she improved clinically, and when readmitted to hospital again six weeks later for a second course, her white cell count had recovered to 5000 per cubic millimetre. After this second course, her white cell count fell to 2400 per cubic millimetre, but one week later it had risen to 4700 per cubic millimetre. She now felt well, her pyrexia (which had been persistent) settled, and her enlarged spleen and glands resolved slightly. This improvement was not maintained, and at death four weeks later, her white cells numbered only 600 per cubic millimetre, at least half being polymorphonuclear cells.

In view of her initial leucopenia, the rise in the number of white cells following the depression caused by HN_2 and the clinical improvement accompanying each of these post-therapeutic rises, I feel sure that her terminal leucopenia was part of the disease process and not due to HN_2 therapy.

The second patient, Mrs. B.J., was treated in Melbourne and given two courses of HN_2 for advanced Hodgkin's disease. She had persistent leucopenia before treatment, the lowest white cell count being 550 cells per cubic millimetre, and was given HN_2 when her white cells reached 2000 to 2500 per cubic millimetre. The second course ended five weeks before her admission to the Royal Hobart Hospital and eleven weeks before her death. Her condition steadily deteriorated while she was under our care, her white cell count did not rise above 2000 cells per cubic millimetre, and her lowest count was 300 per cubic millimetre. At all times polymorphonuclear cells formed over 50% of the white cells present.

In view of this patient's persistent and severe leucopenia before HN_2 therapy, I think we are justified in regarding the disease as responsible for the bone marrow depression, and not the therapeutic agent. This patient showed no improvement from HN_2 therapy.

If this argument in these two cases is accepted, I can state that we have had no persistent or worrying leucopenia due to HN_2, the lowest count recorded apart from the two cases just considered being 3750 per cubic millimetre. This rapidly rose to normal in two weeks.

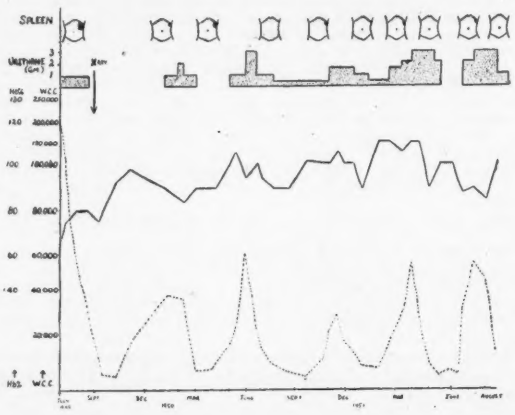


FIGURE III.
W.T., a male patient, aged sixty-three years.

Although red cell counts and hæmoglobin values dropped slightly after HN_2 therapy, no significant fall was noted. Platelet counts were not made as a routine procedure; clinically no rashes, no purpura and no abnormal bleeding were noted.

Five other patients with Hodgkin's disease have been treated by HN_2 and the condition of all has improved, though only temporarily.

The most dramatic case was that of M.P., a girl, aged thirteen years when she received HN_2. Her clinical history is interesting; she presented in 1947 with paraplegia, and an extradural spinal tumour was completely removed by Dr. D. W. L. Parker, with relief of her paralysis. This tumour was examined histologically in three cities in Australia, and five diagnoses were supplied. In 1949 she developed a pleural effusion from enlarged mediastinal glands and received two short courses of X-ray therapy at Launceston, with a great deal of improvement (July, 1949, and January, 1950). In March, 1950, large masses of glands had formed in the neck and her left leg was swollen. When she was readmitted to hospital in June, 1950, large masses were present in her left supraclavicular region, in both axillæ, and in the lower part of the abdomen and the groins. The mass in her left groin and the lower part of the abdomen was extremely large and obstructing venous return in the left leg, which was grossly swollen, which prevented her from walking. Examination of a gland in the neck now revealed Hodgkin's disease, and HN_2 was administered. Vomiting was completely controlled by pyridoxine. She responded dramatically, the masses of glands melting away and the swollen leg returning to normal. One week after the course was completed the circumferences of her thigh and leg were each reduced by three inches. Two weeks

after therapy she was discharged from hospital, well, and walking with the aid of a stick. She has not been examined since, but a letter was sent to her mother last month, who replied that her daughter had remained extremely well until recently, when some lumps had reappeared under her jaw. It is now fourteen months since her discharge from hospital.

Miss M.C., aged thirty years, was first diagnosed as suffering from Hodgkin's disease in 1947, and received several courses of X-ray therapy. In March, 1950, very large glands were present in the left axilla, glands in other areas were enlarged and the upper lobe of the right lung was infiltrated. HN_2 caused all except one left pectoral mass to subside in one month. She was readmitted to hospital and given a second course (six weeks after the first), and one month later the pectoral mass had disappeared. After this she remained well, but the left axillary glands commenced to enlarge, and these were irradiated in October, 1950.

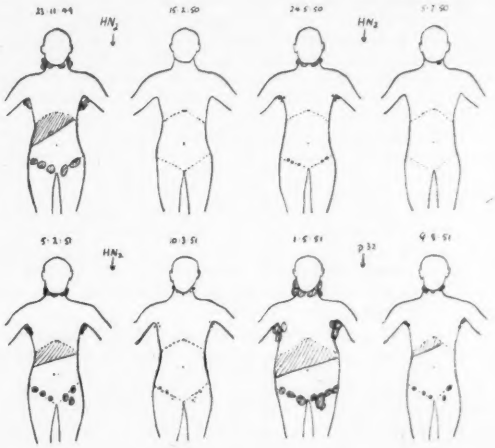


FIGURE IV.

F.R., a male patient, aged forty-nine years.

When the patient was last examined, just a few days ago, her glands were enlarging at all areas except the left axilla.

This case illustrates how HN_2 therapy may be repeated in four to eight weeks to gain a maximal effect (blood counts permitting), and also the longer lasting effect of radiotherapy, as all glands have enlarged again except those which were irradiated.

Two other patients with Hodgkin's disease who had not previously received radiotherapy were given HN_2 and both responded very quickly and dramatically, symptoms, particularly pain, being relieved, appetite returning, glands subsiding and weight increasing. However, both relapsed within three months, one is now dead, and the other may be. When last heard of, he was in Sydney receiving radiotherapy to large masses of glands.

The remaining case of Hodgkin's disease for consideration is that of a female, aged thirty years, with a nine years' history. She has had repeated courses of radiotherapy and received HN_2 twice, with some relief of symptoms, cessation of bleeding from the rectum and slight reduction in the size of glands and spleen.

In this case improvement, while definite, was not pronounced and did not last longer than two months after each course.

Five patients with miscellaneous conditions received HN_2. One also received P^{32} and will be considered later. Of the others, three had no objective response, though all claimed subjective improvement and loss of some pain. These patients were respectively suffering from hepatoma of the liver, chronic lymphatic leuchæmia (mentioned previously as not responding to urethane), and carcinoma of the lung. The last-mentioned patient received two courses, with relief of chest pain for one to two weeks, but no other evidence of a favourable response.

The remaining patient, Miss M.K., aged fifty-one years at death, first presented in December, 1948, with generally enlarging glands, and received radiotherapy twice in 1949, with improvement on each occasion, which was not maintained. In December, 1949, one year after the disease caused symptoms, she presented with enlarged glands (though smaller than one year previously), her right lung completely solid with infiltrated tissue, and skin lesions. She was very ill, and HN_2 therapy was decided upon as a desperate measure. This was the first occasion on which HN_2 had been used at the Royal Hobart Hospital. After four weeks a dramatic improvement was obvious, and over the next month the glands and skin lesions steadily decreased in size; the mass in the right lung also slowly resolved, but not completely. She remained well till May, 1950 (six months later), when new gland enlargements were appearing, and was readmitted to hospital shortly afterwards with a chest infection and rapidly enlarging glands. Another course of HN_2 again caused rapid disappearance of the glands, but

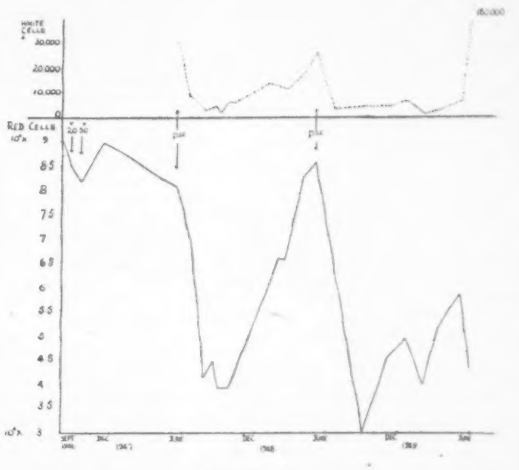


FIGURE V.

E.M., a female patient, aged forty-seven years.

she did not improve clinically, and died in July, 1950, eight months after being first treated "as a desperate measure". Her diagnosis has always been the subject of argument, but histological examination of autopsy material revealed "reticulosarcoma".

P^{32}.

P^{32} is the symbol given to the radioactive isotope of phosphorus having an atomic weight of 32 compared to the normal 31 of phosphorus. P^{32} or radiophosphorus, as it is also called, was first used by Lawrence in California (Lawrence, 1947). He tried it in cases of leuchæmia in 1936, and in 1939 commenced the treatment of *polycythæmia vera* with this agent.

P^{32} is manufactured in the cyclotron by the addition of a neutron to the phosphorus atom. This neutron emits β rays and disintegrates to a proton, leaving stable sulphur (which has an atomic weight of 32). P^{32} has a half-life of 14·3 days, which means that 50% of the P^{32} changes to sulphur in 14·3 days. The dosage is measured in millicuries, one millicurie being the amount of P^{32} in one cubic centimetre which disintegrates at the rate of 37,000,000 atoms per second. It is usually made up as sodium acid phosphate (NaH_2PO_4), and may be administered intravenously or orally, 25% of its potency being lost if it is given orally. P^{32} enters into all normal phases of phosphorus metabolism, and the uptake by any tissue depends partly upon the rate of growth. P^{32} is consequently concentrated in bone, bone marrow, liver, spleen and lymph glands; under pathological conditions the uptake is much greater in growing neoplastic tissue than in tissues showing normal growth. The effect is comparable to an X-ray bath.

Dosage varies. A total of 5 to 25 millicuries may be given over several days to months. The activity may continue for nearly one month after the last dose, and excessive dosage produces bone-marrow depression, all three elements being affected, but the platelets rapidly recovering.

P^{32} has been used in two cases. One of these patients received P^{32} at Launceston, but was followed up in Hobart. The other case is probably the most remarkable of the whole series mentioned in this paper and will now be considered. In neither case was any complication noted.

Mr. F.R., now aged forty-nine years, was first examined in November, 1949, with a history of rapidly enlarging glands at all areas for four weeks, and aching under the right costal margin for seven weeks. He had felt ill for only two weeks. On examination of the patient (see Figure IV) glands were greatly enlarged at all areas, and his liver was palpable five inches below the rib margin. His legs were slightly œdematous, neck veins were distended and the veins of his arms stood out as thick cords. Examination of a gland removed from his neck revealed lymphosarcoma. Blood examination gave normal results. He was recommended for P^{32} therapy, but none was then available, so he was discharged from hospital. However, his condition worried us, and early in December he was readmitted to hospital and given HN_2, 8·3 milligrammes per day for four days. An amazing remission commenced before the course was completed; in a few days the glands were softer and reduced in size, and two months later no abnormality could be found on clinical examination, not one gland was enlarged, and he felt very well. Five months later (May, 1950) some small glands reappeared in the neck, and a second course of HN_2 was given. Again the glands melted away, but this time the response was delayed for several weeks, and one small gland remained under the chin. By October the glands were enlarging again, though he felt well. He was readmitted to hospital in February, 1951, for a third course of HN_2. His condition resembled that on his first admission to hospital, but was not quite so bad. Again, he responded rapidly, but he felt ill and the glandular enlargement did not go completely, though the glands continued to shrink for six weeks after the course had ended. A macular rash developed about this time which responded to "Benadryl"; this rash may have been a toxic effect of HN_2. Apparently HN_2 was losing its effect in this case, because the patient relapsed badly and was readmitted to hospital three months later (May, 1951), distressed, with enlarged glands, œdematous legs and ascites; aspiration produced pseudo-chylous fluid. Blood counts still gave normal results. P^{32} was secured and administered as follows: on May 9, 2·6 millicuries given orally; on May 18, 2·0 millicuries given intravenously. A blood examination now revealed a hæmoglobin value of 115%, a white cell count of 31,150 per cubic millimetre, and 88% lymphocytes in the differential white cell count. The blood film was indistinguishable from lymphatic leuchæmia. Six weeks later (July, 1951) another surprising remission had occurred. The glands were much smaller, the liver edge was only two inches beneath the costal margin, the ascites and œdema had gone and he felt well again. The white cells now numbered 8250 per cubic millimetre and the blood film was normal. More P^{32} was obtained, and he received 3·6 millicuries intravenously on July 26 and 5·0 millicuries intravenously on August 9, a total effective dose of 12·7 millicuries. This patient was last examined one week ago; he felt very well, small glands were palpable in most areas, and his liver was just palpable. Blood examination revealed no abnormality.

HN_2 kept this condition in check for eighteen months, and now P^{32} has produced another good response. He was so ill, with greatly enlarged glands and a very short history, that it is reasonable to credit HN_2 and P^{32} with considerably prolonging his life. His further progress will be watched with interest.

Mrs. E.M., aged forty-seven years at death, was diagnosed as suffering from *polycythæmia vera* in 1930, when aged twenty-seven years. She came under notice for radiotherapy in 1942, when X-ray treatment was commenced. By 1947 she was troubled with many symptoms, her response to radiotherapy was disappointing, and she was being subjected to repeated venesections, with little improvement; these were technically difficult owing to the viscosity of her blood. In June, 1947, 4·0 millicuries of P^{32} were administered intravenously, with a considerable improvement both symptomatically and hæmatologically (see Figure V), her red cell count dropping gradually from 8,100,000 cells per cubic millimetre to 4,200,000 cells per cubic millimetre after two months, and to 3,800,000 cells per cubic millimetre after three months. Her white cells were also reduced in number. She felt well and continued at her work. By December, 1947, six months later, she felt weary and her red cell count commenced to rise. In June, 1948 (one year later), her red cells numbered 8,600,000 per cubic millimetre, and 3·8 millicuries of P^{32} were administered intravenously. Again she responded well, but six months later she presented with aches and pains in her legs and back. Her white cells numbered only 1800 per cubic millimetre and her persistently normal red cell count (4,000,000 cells per cubic millimetre) caused her medical officer to suspect the development of leuchæmia. This proved to be correct, and she died of monocytic leuchæmia in June, 1949, two years after P^{32} treatment had commenced.

Comment.

In the assessment of these results clinical improvement and hæmatological examinations have been our main guide. No statement can be made about prolongation of life in most of these cases, as the prognoses of the diseases under consideration are so variable; for example, duration of life in myeloid leuchæmia may average three years, with variations of a couple of years either way, and therapy is said not to prolong life but just to alleviate symptoms. Occasional patients may survive for ten to twenty years (Witts, 1941). Hodgkin's disease may take from twelve months to over fifteen years to run its course, lymphosarcoma varies considerably with or without therapy, while *polycythæmia vera* may go on for years without treatment and remissions may occur. No comparison or contrast with radiotherapy can be made other than the observation mentioned earlier, that radiotherapy appeared to exert a more lasting effect than HN_2 in one case. However, radiotherapy acts locally while these agents act generally.

It would be interesting to know whether these agents can make a radio-resistant subject once more sensitive to radiotherapy, and also whether F.R., who now appears resistant to HN_2, will respond to this agent when he no no longer responds to P^{32}. No doubt time will tell, and also, no doubt, before long these agents will be replaced by better ones.

Summary.

Urethane has been used in the treatment of six patients, four of whom were suffering from chronic myeloid leuchæmia; of these, three are regarded as responding well and one moderately. Urethane depressed the white cell count in one undiagnosd case and did not affect one patient suffering from chronic lymphatic leuchæmia.

Nitrogen mustard has been used in six cases of Hodgkin's disease, and a seventh patient treated in Melbourne has been observed. These have been classified on the duration of remission of symptoms and reduction in glandular swellings. One did not respond; four had relief for periods up to three months, one for from three to six months, and one for fourteen months. Five other patients received HN_2; one patient with lymphosarcoma responded dramatically for six months and was kept fairly well by repeated courses for a total of eighteen months; one patient with reticulo-sarcoma responded well for five months, while three patients had subjective and fleeting relief only.

P^{32} has been used twice, and both patients have responded well.

These agents—urethane, nitrogen mustard and P^{32} or radio-phosphorus—have been found to be safe, easy to use and not unduly unpleasant to the patient. They do give temporary relief in certain diseases and appear to be very useful adjuncts to radiotherapy. Although the series presented is very small, the results obtained indicate that the agents are worth a trial in these distressing conditions, which in the present state of our knowledge are incurable.

Acknowledgements.

I wish to thank Dr. W. P. Holman, who directed the treatment of these patients; Dr. R. Whishaw, physician to the Royal Hobart Hospital, Dr. L. W. Knight, superintendent of the Royal Hobart Hospital, Dr. W. R. Pitney,

former pathologist to the Royal Hobart Hospital, and Dr. D. E. Anderson, the present pathologist, for permission to report these cases and for much helpful advice and encouragement.

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THE LIMITATIONS OF GRAHAM'S TEST IN THE EXAMINATION OF THE GALL-BLADDER.[1]

By D. G. MAITLAND,
Sydney.

GRAHAM'S TEST depends upon the physiological secretion and concentration of bile which has been rendered opaque to X rays by the ingestion of pheniodol.

During my visit to London last year I had an opportunity of observing the methods which have been adopted in many of the larger radiographic departments, and I found that patients who were being examined for gall-bladder disease by Graham's test were under the direct supervision of a technician who was highly skilled in gall-bladder radiography. His or her time was almost fully occupied with this examination alone. In each case serial radiographs were taken until it was considered that the test had been satisfactorily completed.

In many metropolitan hospitals in Australia we have not yet reached this ideal for obvious reasons, and the result must be a number of incomplete Graham's tests.

The visiting radiologist is called upon to express an opinion upon a limited series of films—sometimes only three—in which the gall-bladder shadow may be partly obscured by bowel contents, and in which the time interval between the "resting" and "contracting" phase is indefinite. Clinical history is often conspicuous by its absence from the examination sheet. Under such conditions I consider that the only positive report which we can give upon the result of a Graham's test is the conclusive demonstration of gall-stones, of either the opaque or the translucent variety. In the absence of demonstrable gall-stones the result of Graham's test may be inconclusive and misleading.

The large opaque calculi are usually associated with a non-functioning gall-bladder, whereas the "millet seed" variety may become visible only when the gall-bladder has contracted after the administration of an adequate fatty meal or after the ingestion of bile salts by the mouth. They may become visible on technically perfect films just before contraction is complete.

The contraction phase of Graham's test is therefore the more important part of the examination, and to it the least attention is given from the radiographic point of view. The progress of contraction should be radiographically recorded at intervals of time until the gall-bladder has emptied. This may vary from one and a half to four or more hours after a standard fatty meal or bile salts have been given to the patient.

In an attempt to standardize the gall-bladder contractor, Allen and Hanbury's, Limited, produced during the war a ready-prepared meal ("Fel-Evac") which can be given to the patient immediately after the first satisfactory radiographs have been taken. Subsequent radiographs may be taken half an hour, one hour and three or more hours later, in order to observe contraction.

A good shadow of the gall-bladder merely implies that there is a sufficiency of healthy mucosa to cope with adequate bile concentration. If the gall-bladder fills normally with opaque bile, and if it has emptied one and a half to two hours after a fatty meal, the radiologist must consider it to be functioning normally. If the contraction phase is delayed, this may be due to the presence of an unsuspected duodenal ulcer with pylorospasm or gastric hypotonia—either of which would retard the normal stimulus of a fatty meal. If the gall-bladder shadow shows decreased density and sluggish contraction, cholecystitis is the most probable cause. A moderate degree of cholecystitis will be revealed by a hardly perceptible shadow due to the mucosal damage, and it will show poor contraction.

Now let us consider the films taken during a Graham's test, which fail to show any shadow of the gall-bladder.

There are several possibilities in hospital practice. No shadow usually means that the gall-bladder has ceased to function and that the cystic duct is occluded by fibrosis or non-opaque calculus. Two questions must be asked: "Is the patient jaundiced?" "Has there been a previous cholecystostomy or cholecystectomy?" Fantastic though it may seem, I assure you that I have been asked to carry out a Graham's test upon a patient who had undergone cholecystectomy.

If the patient is jaundiced it is usually useless to carry out a Graham's test, since bile is already dammed back in the blood-stream, through failure of the liver to secrete it. Even if a faint shadow is obtained in the presence of jaundice, it will not indicate that the gall-bladder is diseased.

The possibility of demonstrating a calculus as the cause of obstructive jaundice is often remote. Only 10% of biliary calculi contain sufficient calcium to render them opaque or faintly opaque to X rays.

In hospital cases in which no shadow of the gall-bladder is obtained during Graham's test, the radiologist must observe the films very closely. He must note whether the shadow of the lower margin of the liver is visible. In patients with visceroptosis the gall-bladder may lie well below the iliac crest. He must note whether Graham's test dye is present in the gastro-intestinal tract or not. If there is no trace of unabsorbed dye, the patient has either vomited it or refrained from taking it. If dye is visible, the radiologist must note whether it is retained in the stomach, or whether it is in the small intestine, or whether it is in the colon. If it is in the stomach the patient may have a pyloric obstruction or may have taken the dye only an hour or so previously instead of late the previous afternoon. In either event the dye was not available for absorption and secretion by the liver. If the dye is in the small intestine and in the proximal part of the colon the patient has failed to carry out the strict instructions to abstain from food until after the first series of films have been taken. I recall to mind an attentive husband who brought a "brandy and milk" to the patient about an hour before she left home for her appointment. Unless they are strictly supervised, hospital patients may obtain food or may accidentally be given a glass of warm milk, during the fasting phase of Graham's test, which usually lasts from 6 p.m. to 9 a.m. the following day. Graham's test should be repeated in all cases in which no shadow of the gall-bladder is obtained.

Extrinsic tumours may displace or distort the gall-bladder or cause pressure upon the cystic or common duct. In the latter circumstances a diagnosis may not be made until operation. The intrinsic papilloma may be indistinguishable from small transradiant calculi in those cases in which the cystic duct is not obstructed.

[1] Read at a meeting of the College of Radiologists (Aust. and N.Z.) at Sydney on September 28, 1951.

Biliary dyskinesia due to over-stimulation of the vagus nerve produces spastic contraction of the gall-bladder with pain. In this condition the gall-bladder fails to empty and is usually fairly densely opaque for twenty-four hours or more. Films taken at varying intervals of time, despite ordinary meals, reveal it in tonic contraction. This condition is distinct from the faint shadow which may be seen the day after a Graham's test due to reabsorption of the dye from the intestinal tract. In dyskinesia a short course of sedation and antispasmodic treatment may lead to a normal result to Graham's test on reexamination. I have encountered cases (which were associated with duodenal ulcer or chronic appendicitis) in which the gall-bladder had failed to empty six to eight hours after a fatty meal.

Conclusion.

I have indicated the limitations of Graham's test from the radiological aspect, and have purposely refrained from commenting upon many points.

Reviews.

BONES.

PROFESSOR P. LACROIX, of the University of Louvain, in his book "The Organization of Bones", has packed a surprisingly large amount of material into a book of very modest dimensions.[1] He begins with a general account of bone organization and growth for the purpose of orientation. This is accompanied by a sufficient historical survey to put the subject in its proper perspective. In his subsequent development Lacroix considers in turn every aspect of bone growth in the light of existing views and of his own experimental work, which is very considerable. In this critical review nothing is taken for granted; everything, even widely accepted beliefs, is subjected as far as possible to experimental scrutiny. The author is thus in a position to make authoritative pronouncements and does not hesitate to do so. He denies the occurrence of amitotic division of chondroblasts and provides what appears to be a better interpretation of some events in bone growth than is found in the views of Hellstadius and Policard. Lacroix attaches great importance to the fact that the periosteal sleeve must slide along the bone during growth in length, and points out that tendons attached through the periosteum to the bone do not acquire their final anchorage until growth has ceased. Experimental transplants indicate that bone growth is at least partly under organizer control and can induce some appropriate responses in a normally non-osseous host tissue. The book is too crammed for adequate review and should be read carefully by all interested in the subject—particularly anatomists, orthopædists and pædiatricians. It is not for the general reader, but certainly should find a place in every medical library. The author's views are sure to provoke some opposition, but they are based upon ample observation and are worthy of respect. The illustrations are, for the most part, good; the translation is usually excellent.

NEWER CONCEPTS OF INFLAMMATION.

VALY MENKIN'S little book represents material presented at a dental seminar in 1948 on the concepts of the course of events in inflammation and the causative factors of the various changes worked out by the author over a period of some twenty years.[2] These concepts differ profoundly in many respects from those usually accepted. It is not possible, without taking a great deal of space, to give a clear idea of the author's notions of the sequence of events following tissue irritation and, in particular, of the substances set free by the injured cells and their effects. The author claims that he has isolated in crystalline form a substance he calls leucotaxine which corresponds to the H-substance of Lewis and is not histamine. This substance, set free by injured cells, increases capillary permeability and causes diapedesis of leucocytes. He claims that he has isolated a substance, also set free by injured cells, which promotes leucocytosis, a toxic euglobulin fraction which has proteolytic activity, a pyrogenic factor, a globulin which stimulates the formation of granulocytes, and a leucopenic factor, and he gives methods for the preparation of these. The phases in the development of inflammation and the effects of the substances mentioned are described in detail.

The book is a very interesting study, but one gets the impression that the whole picture is too perfect. The author has done an immense amount of work, but explanations other than those given by him of results he has obtained can be offered and the book should be read very critically.

[1] "The Organization of Bones", by P. Lacroix, translated from the amended French edition by Stewart Gilder, B.Sc., M.B.; 1951. London: J. and A. Churchill, Limited. 8½" × 5½", pp. 244, with 87 illustrations. Price: 25s.

[2] "Newer Concepts of Inflammation", by Valy Menkin, M.A., M.D.; 1951. Springfield, Illinois: Charles C. Thomas. Oxford: Blackwell Scientific Publications. 9" × 6", pp. 154, with 67 illustrations. Price: 25s. 6d.

Notes on Books, Current Journals and New Appliances.

WORDS OF SCIENCE.

THOSE who study the fascinating subject of words will like T. H. Savory's "Browsing Among Words of Science".[1] It deals in turn with words fundamental, chemical, physical, biological, geological, medical, mathematical and human. The English published price of one shilling puts it within the reach of everyone. "Science" is a "fundamental" word. It is discussed at some length. It has so far outgrown its derivation from *scio*, I know, that it is used for the elementary chemistry of the schoolboy, for the rapid skill of the pugilist, and for the message of Mary Baker Eddy. "And of course it is none of these things." Its true significance is traced, and this is followed by a reference to "scientist". This book is well named—it is eminently suited to browsing.

Books Received.

[The mention of a book in this column does not imply that no review will appear in a subsequent issue.]

"A Textbook of General Physiology", by Hugh Davson, D.Sc. (London); 1951. London: J. and A. Churchill, Limited. 9½" × 6½", pp. 672, with 288 illustrations. Price: 45s.

The author has attempted to gather together the results of modern research carried out by workers with the viewpoint of the general physiologist.

"Vitamins: A Digest of Current Knowledge", by Leslie J. Harris, Sc.D., D.Sc., Ph.D., F.R.I.C.; 1951. London: J. and A. Churchill, Limited. 7½" × 5", pp. 256, with 84 illustrations and 111 structural formulæ. Price: 15s.

The object of the book is to supply a relatively brief and summarized account of all the more important known facts and conclusions about the vitamins.

"Biochemistry for Medical Students", by William Veale Thorpe, M.A. (Cantab.), Ph.D. (London); Fifth Edition; 1952. London: J. and A. Churchill, Limited. 8½" × 5½", pp. 536, with 41 illustrations. Price: 22s. 6d.

The fourth edition was published in 1947.

"Calendar of the Pharmaceutical Society of Great Britain, 1951-1952." London: The Pharmaceutical Press. 9" × 6", pp. 312. Price: 12s. 6d.

Contains information on every aspect of pharmacy in Great Britain. Indispensable to those concerned in a national health service.

"Diary of a Doctor", by Dr. "Peter", M.B., Ch.M., with a foreword by Professor R. Douglas Wright; 1951. Melbourne: Robertson and Mullens, Limited. 9" × 5½", pp. 170. Price: 16s.

A chatty and vivid collection of paragraphs on all sorts of topics with a message tucked away in most of them. Some epigrams from classical and modern sources are a delight.

[1] "Browsing Among Words of Science", by Theodore H. Savory, M.A., F.Z.S.; 1951. London: C. A. Watts and Company, Limited. 7½" × 5", pp. 94. Price: 1s.

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THE CONSERVATIVE TREATMENT OF PERFORATED PEPTIC ULCER.

THE orthodox treatment of acute perforated peptic ulcer is prompt surgical intervention. The exact surgical procedure adopted depends upon the individual surgeon. In a survey of the subject published last year, S. W. Moore[1] placed the procedures used into three groups: (i) the least possible surgery and closure of the perforation by the simplest method; (ii) the combination of closure with gastro-enterostomy; (iii) the resection of the stomach and perforated ulcer at the same time. Moore favours closure of the perforation by simple suture and reinforcement of the suture line with a small tab of omentum. When simple suture causes obstruction, it is combined with gastro-enterostomy. Immediate gastric resection has been practised more particularly by European surgeons, and good results have been reported; these results apparently depend on the careful selection of "good risk" patients. In general, the mortality rate following surgical treatment has declined steadily over the years. R. H. Vaughan and R. Warren[2] have compiled a table from representative reports since the beginning of the present century, and the reported mortality rates show a progressive decrease from 44% to just over 1%. There is indeed good reason to regard surgical treatment with modern technique and associated aids as the therapeutic method of choice. Many instances have been recorded, however, in which recovery followed acute perforation of a peptic ulcer in the absence of surgical intervention, and some authors have advocated deliberate non-surgical treatment in selected cases. Of recent years articles along these lines seem to have appeared, mostly in British journals, but Vaughan and Warren, who hail from Boston, adopt the same viewpoint. They report their experience over a six-year period with 81 patients suffering from perforated peptic ulcer, treated at the Veterans Administration Hospital, West Roxbury, Massachusetts. In 70 cases surgical closure of the perforation was performed, with one death. In 11 cases non-operative treatment was adopted, with two deaths, both of which occurred shortly after the patients had been admitted to hospital and were associated with shock and acute peritonitis. Vaughan and Warren make it quite clear that they regard the indications for non-operative treatment of patients with perforated peptic ulcers as few, but they consider that if these indications are heeded, the mortality will be favourably influenced. The rare cases regarded as suitable are those in which one is convinced that the perforation has sealed, that the peritonitis has become localized, or that the patient offers too poor a risk for surgical intervention. Establishment of these indications requires considerable clinical judgement, but there will be cases in which the experienced clinician can say with reasonable certainty that they exist. Among the conditions determining the state of poor surgical risk in Vaughan and Warren's series were shock, a recent myocardial infarction, and acute pulmonary infection. As might be expected, examination of the case histories shows that in every instance of deferment of operation on grounds other than the patient's general unfitness, a relatively long period had elapsed between the onset of symptoms and examination by the surgeon. Except when the operation *per se* appears likely to kill the patient, Vaughan and Warren do not suggest that conservative treatment should be adopted if sealing of the perforation or localization of the peritonitis has not already occurred. Measures other than operation, and especially the use of gastric suction and the administration of penicillin and sulphadiazine, are valuable in themselves and may, on occasion, be sufficient, but as Moore remarks, it appears wise to help Nature by means of an operation and then to add these extra safeguards rather than to hope that the ulcer will seal itself off. He drily comments, to drive the point home, that we have mute evidence in the autopsy room that this fails in many instances.

Vaughan and Warren's view is, of course, a long way from that of such advocates of conservative treatment as Herman Taylor,[1] whose work was referred to in these columns on December 21, 1946. Taylor, when he wrote in 1946, was of the opinion that in the great majority of cases of perforated peptic ulcer surgical intervention was not necessary. His method of management consisted essentially in the substitution of gastric aspiration for surgical operation, and he quoted a series of 28 consecutive cases of perforated peptic ulcer in which this method was followed; 24 of the patients recovered, three died from causes regarded as unconnected with the treatment, and one died who might have been saved by immediate operation. Taylor admitted that the death was due to error in selection, an error that he considered, in the light of subsequent experience, should be avoidable in the future. His paper provoked a considerable correspondence in the columns of *The Lancet*, with a deal of support for the method, which was generally accepted as being not new. However, the orthodox position was convincingly presented by G. Grey Turner,[2] who concluded a long and tolerant letter with the following comments:

> My mind goes back to the days when recovery after ruptured ulcer was a rare event, and now that early surgical intervention yields such great rewards it seems a pity to lightly turn away from the path. It is important that we should learn the real comparative value of the conservative method, but no-one should try the plan unless they are prepared to carry it out

[1] *The Surgical Clinics of North America*, April, 1950.
[2] The New England Journal of Medicine, June 14, 1951.

[1] *The Lancet*, September 28, 1946.
[2] *Ibidem*, November 9, 1946.

> thoroughly and conscientiously in all its details. It would really be better if the trial could be left in the hands of a few. In the meantime do not let us broadcast the conservative method as though a well-established surgical procedure like early operation was already outdated.

There is little to suggest that such broadcasting has taken place or that the method has found wide acceptance, if we may judge by the few papers published on the subject. Later in 1946 A. Hedley Visick[1] reported his experience (apparently quite independent of that of Taylor) of non-operative treatment in 14 consecutive cases of perforated peptic ulcer and concluded that the results justified further trial of the method. Of his 14 patients 11 recovered; one, perhaps two, of the failures might have been averted by operation. Stimulated by Taylor's and Visick's papers, B. McN. Truscott and J. F. R. Withycombe[2] treated by the conservative method 20 patients with a firm clinical diagnosis of perforated peptic ulcer and compared their results with a series of 37 patients treated operatively over the same two-year period; both groups were selected by chance. Truscott and Withycombe reached the following two broad conclusions: that the treatment of choice for most perforated ulcers is immediate laparotomy and closure of the perforation; that the conservative method has a definite place in the treatment when (*a*) the diagnosis is in doubt between a perforation and a condition in which operation would be contraindicated (for example, coronary thrombosis or diaphragmatic pleurisy), (*b*) the patient's condition makes operation inadvisable, (*c*) the signs are indefinite and a large perforation with much soiling of the peritoneal cavity is unlikely, or (*d*) good surgical facilities are not available. These cautious conclusions, like those of Vaughan and Warren, do not suggest that non-operative treatment has made much headway in the confidence of those who have employed it, though they concede it a place when an alternative method is unattractive or lacking. Other surgeons seem to have dismissed it from their thinking. For example, H. A. Kingsbury and E. E. Peacock,[3] in reporting their experience with 170 cases of acute perforation of peptic ulcer at the Roosevelt Hospital, New York, fail to mention deliberate non-operative treatment, though their study covers a six-year period from 1944 to 1949. They do state, however, that four patients of the 17 who died were in a state of shock on admission to hospital, and "in the light of our present knowledge, these patients in all probability should not have been operated upon"; this is not explained or amplified, and the reader must draw his own conclusions.

Amongst Australian surgeons little enthusiasm for non-operative treatment has been evident. A. J. Trinca,[4] in a paper on the treatment of acute perforation in peptic ulcers that examined carefully the rational basis for the surgical methods advocated, makes no mention of conservative treatment. Charles Gale[5] presented a patient who had recovered after conservative treatment and discussed the case at a clinical meeting at Geelong Hospital in 1947. He expressed interest in the technique as it had been presented by Taylor, Visick and others, but was inclined to restrict its application to late cases, such as that of the patient presented, and possibly to those cases in which very slow and minimal leak of a peptic ulcer was suggested. He gave no indication that his personal experience extended beyond the one case. In the following discussion, T. H. Ackland said that it appeared to him that they had had a description of what might be done without disaster rather than what should be done deliberately. In the first of his Edward Stirling Lectures, delivered in 1949, K. W. Starr[1] expresses direct disagreement with conservative management of ruptured peptic ulcers, having seen two patients die who in his opinion should have been given the benefit of surgery. However, he feels that "no danger subtends the conservative management of an ulcer which has perforated and in relation to which the following conditions exist: (i) The patient is in hospital. (ii) Adequate doses of penicillin are available. (iii) The stomach is kept empty by continuous gastric suction. (iv) The pain, tenderness and rigidity are confined to the right hypochondrium or, at the most, the right watershed". He concludes: "In effect, tenderness in the left watershed or persistent pain and increasing rigidity demand operation." In a review of 72 cases of perforated peptic ulcer, in which the standard method of treatment was simple suture reinforced by omental graft, T. F. Rose[2] makes passing reference to the conservative method, but is obviously unimpressed. He discusses the local conditions that can militate against spontaneous closure of the perforation and the difficulty of knowing the amount or type of material escaping into the peritoneal cavity. He refers also to the possibility of a wrong diagnosis and to the chest complications that can follow conservative as well as operative management. He concedes one thing that can be learnt from this method—as soon as a perforated ulcer is diagnosed, a tube must be passed immediately to keep the stomach as empty as possible whilst the patient is awaiting operation. "This one manœuvre will have a better effect on the results of operation than any other factor." In short, we may conclude that the measures advocated by those who practise conservative treatment should be added to, not separated from, surgical measures. These measures in competent hands offer a good prognosis in most cases, as well as a sense of knowing what is going on that must be disturbingly absent when the abdomen has not been opened. As modern methods of anæsthesia and supportive therapy develop and become routine procedures even for the surgeon operating far from the major surgical centres, the risks attached to surgical procedures as such must continue to decrease, and the indications for conservative treatment of perforated peptic ulcer will become increasingly narrowed.

[1] *British Medical Journal*, December 21, 1946.
[2] *The Lancet*, May 13, 1950.
[3] *Surgery, Gynecology and Obstetrics*, June, 1951.
[4] THE MEDICAL JOURNAL OF AUSTRALIA, March 29, 1947.
[5] *Ibidem*, December 20, 1947.

Current Comment.

"THE PRACTITIONER" REACHES THE THOUSAND MARK.

FIRST published in 1868, *The Practitioner* has in October, 1951, produced its one thousandth issue. It celebrates the occasion with a series of special articles. Sir Henry Dale writes on the changing face of medicine, 1868 to 1951. He refers to the special skill of the "old physicians" and their finely trained and largely unaided powers of observa-

[1] *Ibidem*, August 20, 1949.
[2] *Ibidem*, April 1, 1950.

tion and to the advent of elaborate methods of diagnosis. He sees a danger that something may be lost of the special artistry of the physician—this danger should not be ignored, but on the other hand it should not be exaggerated. If there is any tendency to base on scientific data conclusions which go beyond the limited range of their exact significance, it is possibly to be attributed, not to a detrimental intrusion of the scientific method, but to the slow reluctance of some clinicians to acquire the scientific habit of mind and to adapt their methods of interpretation to the inevitable change in the nature of clinical evidence. Sir Henry Bashford writes on the social background of medicine and reproduces four pictures from *Punch*. One from *Punch* of 1893, "The New Doctor", is eloquent and most appropriate. A bonneted and beshawled female looks after a retreating doctor resplendent in top hat and carrying a cane, and addresses her friend of the street: "The *hidea* of a young man like that a-telling of *me* 'ow poor peoples' children houghter be fed and looked after! Why, I've buried fourteen o' my *own*." The title of an article by Dr. William N. Pickles is "Trends of General Practice: A Hundred Years in a Yorkshire Dale". It is to these trends that *The Practitioner* has borne witness in a thousand issues. The other papers are by different authors and deal with recent advances in the several branches of medicine. This is as it should be, because advances in medicine must and will continue. In a few years when *The Practitioner* scores a century, further advances will be waiting to be recorded. We salute *The Practitioner* and wish for it a steady advance in prosperity.

HÆMORRHAGE AND RETROLENTAL FIBROPLASIA.

THE ætiology of retrolental fibroplasia remains obscure. Its association with prematurity and low birth weight is clear, as was pointed out in a previous discussion of the subject in these columns on September 23, 1950. Many other factors have been brought forward as significant, and particular interest has centred on Owens and Owens's suggestion that vitamin *E* deficiency may be important. However, no final opinion about any of these points has been reached. One important clinical observation bearing on ætiology was the finding by Owens and Owens that the condition appeared after birth on an initially normal fundus picture. This finding is supported by W. E. Laupas and F. B. Bousquet,[1] who have made serial ophthalmoscopic examinations of 72 premature infants weighing less than 1650 grammes (approximately three and a half pounds) at birth—the weight that appears to be critical for retrolental fibroplasia. Laupas and Bousquet set out on a study to evaluate the role of vitamin *E* in the prophylaxis of retrolental fibroplasia, but they unexpectedly came on evidence to convince them of the importance of preretinal hæmorrhage as a precursor of the fully developed disease. From the consistent pattern of abnormal findings in their serial examinations they have made an arbitrary division of the pathogenesis of retrolental fibroplasia into six stages; (i) a vascular stage consisting of arterial and venous tortuosity of the retinal vessels with increased calibre of the veins; (ii) a hæmorrhagic stage with rupture of the retinal vessels, leading to the formation of preretinal or subhyaloid hæmorrhages; (iii) a stage of extension, in many instances, of the preretinal hæmorrhage into the vitreous; (iv) a stage of organization of the hæmorrhages with angio-fibrous proliferation, consisting of the formation of fibrous bands and neovascularization; (v) a stage of retinal detachment, usually at the zone of transition between the normal-appearing central and the pale peripheral portion of the retina, a site where preretinal hæmorrhage and subsequent angiofibrous proliferation appear to have the most serious prognostic importance; (vi) a final stage of fully developed retrolental fibroplasia with retrolental membranes formed by fusion of the peripheral folds of detached retina and adherence of the detached retina to the posterior surface of the lens. This pattern was observed in the eyes of 13 out of 14 infants who developed retrolental fibroplasia. Laupas and Bousquet state that in its stages it resembles, in many respects, *retinitis proliferans* (Coats's disease, *retinitis exudativa*) in adults, although the time span is much shorter than that observed in the adult disease. It is important to note that although about one-fifth of the group of 72 infants developed partial or complete retrolental fibroplasia, others developed appearances characteristic of the various earlier stages described by Laupas and Bousquet and then the condition either failed to progress further or returned to normal. Others again remained normal throughout the period of observation. The decline in incidence of the progressive stages, which is set out in diagrammatic form in this paper, indicates the potential reversibility of the disease at any stage short of severe retinal detachment. What the factors are that determine the onset, progress or regression of the condition has yet to be found. The findings of Laupas and Bousquet weight the balance more heavily against theories of prenatal development of the condition or persistence of embryological structures. Their observations, though inconclusive and lacking in adequate controls, do not appear to support the promising results attributed to vitamin *E* therapy by Owens and Owens.

[1] *A.M.A. American Journal of Diseases of Children*, May, 1951.

SECOND ATTACKS OF POLIOMYELITIS.

THE possibility of second attacks of an acute infectious disease is always of practical importance. The more serious the disease, the happier the family doctor is if he can give reasonable assurance that it will not come again. Unfortunately, such assurance cannot be given with any finality for poliomyelitis, which is still dreaded often beyond reasonable limits. It is true that second attacks of poliomyelitis are not common, and this fact brings a measure of comfort; but, according to A. L. Hoyne and I. Lipton,[1] 29 second attacks and 17 doubtful second attacks have been cited in the literature. In only one instance in which the first attack was regarded as authentic (and this is not beyond question) did the second attack end fatally. The unique point about a case reported by Hoyne and Lipton is that they record for the first time post-mortem findings after a second and fatal attack. The first attack of poliomyelitis, which had occurred five years earlier, had left the patient with pronounced weakness of the left lower extremity and muscular atrophy; the nerves supplying the groups of muscles concerned had their origin chiefly in the lumbar region of the spinal cord. Post-mortem examination revealed evidence of past pathological changes in the appropriate areas—namely, moderate atrophy of the left anterior horn of the lumbar part of the cord with extensive destruction of the nerve cells. These findings with the acute changes caused by the fatal attack provided pathological confirmation of the occurrence of two distinct attacks of poliomyelitis. The underlying immunological position in this and other authentic instances of second attacks is not yet defined. Hoyne and Lipton mention briefly the two main possibilities: either that the second attack is produced by a strain of poliomyelitis virus immunologically different from that causing the first infection, or that protection resulting from a first attack is relative. Work at present going on, especially that relating to known different types and strains of poliomyelitis virus, may well make the position clear before long. Meantime, as Hoyne and Lipton state, it is inadvisable to rely on a past history of the disease for certain protection against those who are acutely infected.

[1] *The Journal of the American Medical Association*, June 23, 1951.

Abstracts from Medical Literature.

THERAPEUTICS.

The Treatment of Migraine.

ARNOLD P. FRIEDMAN AND THEODORE J. C. VON STORCH (*The Journal of the American Medical Association*, April 28, 1951) discuss recent advances in the treatment of migraine. They state that the underlying causes of migraine are at present unknown, and that it is doubtful whether any single process or mechanism is responsible. They made a study of 604 patients for a period of one to four years, and a variety of therapeutic approaches was investigated. Four main methods of treatment were used, either alone or in combination: pharmacotherapy, physical therapy, surgery and psychotherapy. It was noted that 20% of the patients were relieved by placebos. For symptomatic relief, ergotamine and its derivatives were found to be superior to all other types of drugs tested. Results obtained from the use of nicotinic acid, sympatholytics and simple analgesics were not impressive. The authors state that ergotamine derivatives may be used as rectal inserts for patients who cannot tolerate the drug when given by the oral route. Psychotherapy was found to be the best method in the prevention of the occurrence of headache. Histamine administered by intravenous infusions or subcutaneous injections was effective in prevention of migraine in only 36% of cases. Nicotinic acid, thiamine chloride, testosterone and antihistaminics were tried, with little success. Physical therapy was used in 15 cases, and the results were unsatisfactory. The best results for symptomatic treatment were obtained with a compound of ergotamine and caffeine ("Cafergot"), and prevention of attacks was best achieved by psychotherapy. The authors consider that in most cases the frequency and severity of the headache can be favourably modified.

"Dramamine" in Vestibular Disturbances.

I. R. GOLDMAN *et alii* (*American Heart Journal*, August, 1951) found great benefit to result from the administration of the antihistaminic drug dimenhydrinate ("Dramamine") to 13 out of 15 patients suffering from dizziness and other vestibular symptoms resulting from arteriosclerotic and hypertensive cardiac disease.

Digitalis and Acute Myocardial Infarction.

JOHN MARTIN ASKEY (*The Journal of the American Medical Association*, July 14, 1951) discusses the role of digitalis in the presence of myocardial infarction, and presents an analysis of the treatment with digitalis of 50 patients suffering from this condition; no obvious complications occurred. The drug was given in therapeutic amounts; administration started in the first week and continued throughout the stay in hospital. It was found that there was no more evidence of ventricular ectopic rhythms or sudden death than occurred in a control group of 50 patients treated without digitalis. It is suggested that the fear of catastrophic arrhythmias should not be cited as a deterrent to the use of average doses of digitalis for the early signs and symptoms of congestive heart failure associated with myocardial infarction.

Rutin in Experimental Malignant Hypertension.

H. K. HELLERSTEIN *et alii* (*American Heart Journal*, August, 1951) found that rutin prevented the characteristic hæmorrhagic phenomena which occur after ligation of the renal arteries when it is administered for ten days beforehand and afterwards. It had no other effect.

An Assessment of Therapy in Parkinson's Disease.

ROBERT S. SCHWAB AND JOHN S. PRICHARD (*A.M.A. Archives of Neurology and Psychiatry*, April, 1951) state that the greater the success in the treatment of a condition, the less are the methods of therapy. The greatest improvement in the treatment of Parkinson's disease that can be expected, is 25% towards normality. In a controlled series they have devised eight tests with which an assessment can be made of any improvement, and they state that the results of the assessment will be the same, no matter what the observer. On a basis of these tests they have found that the most beneficial drugs in order of efficiency are "Artane", "Panparnit", "Benadryl", stramonium, scopolamine, phenergan, belladonna alkaloid, amphetamine and "Diparcol".

Plastic Tubing for Prolonged and Intermittent Intravenous Infusions.

C. D. BONNER (*The New England Journal of Medicine*, July 19, 1951) has used polyethylene tubing for a continuous intravenous infusion lasting one hundred and thirty days. No clot formed in the vein around the tubing, which had an inner diameter of one-thirtieth of an inch and an outer diameter of one-twentieth of an inch. In other cases, by filling the tubing with heparin and closing the distal end at the conclusion of an infusion, the author found that it could be left *in situ* and that reinfusion could be carried out through it after an interval of as long as two weeks. A technique for introducing the tube into the vein and retaining it there is described and illustrated.

Thrombosis Complicating Rapid Diuresis in Heart Failure.

R. J. MARVEL AND W. A. SHULLENBERGER (*American Heart Journal*, August, 1951), who have studied the effects of rapid dehydration on the blood coagulation system in persons suffering from congestive heart failure and in controls, have gained the impression that rapid diuresis predisposes to thrombo-embolic complications, especially during the second week of treatment.

Barbiturate Poisoning.

H. A. FRIEDMAN AND S. C. HARRIS (*The American Journal of the Medical Sciences*, February, 1951) describe the use of massive doses of amphetamines, "Benzedrine" or "Dexedrine" in barbiturate poisoning. They state that given parenterally these drugs raise blood pressure and stimulate respiration, without untoward reactions. Strychnine, picrotoxin and "Metrazol" may cause convulsions if used in large enough doses. "Benzedrine" and "Dexedrine" are equally effective; 20 milligrammes of "Dexedrine" given intravenously increase the respiratory rate, and doses have been repeated until 2490 milligrammes have been given intravenously in twenty-eight hours. The blood pressure is raised at first, but after three or four doses it falls to normal. As a rule 10 to 20 milligrammes of "Dexedrine" are given intravenously every fifteen minutes to one hour according to the patient's condition. Up to 100 milligrammes may be given in one dose. Nine patients were treated in this way for barbiturate poisoning, with success. In addition, stomach lavage with magnesium sulphate, oxygen administration by nasal catheter, intravenous fluid therapy, an indwelling catheter, aspiration of the nose and mouth, a Levine tube in the stomach, postural drainage and tracheal intubation were used.

NEUROLOGY AND PSYCHIATRY.

Encephalitic Form of Metastatic Carcinoma.

LEO MADOW AND B. J. ALPERS (*A.M.A. Archives of Neurology and Psychiatry*, February, 1951) describe an encephalitic form of metastatic carcinoma which may simulate encephalitis. They report four cases. They propose the term "carcinomatous encephalitis" to describe a diffuse type of metastasis to the brain, meninges and perivascular spaces with no nodule formation. They state that clinically their four cases varied, but all patients had meningeal irritation and convulsions, three had an organic mental syndrome and three had hemipareses. Pathologically, in all four cases there was infiltration of the brain and meninges with carcinoma cells. In three cases the primary growth was in the lung, in the fourth case it was unknown. The incidence of this type of carcinomatosis in the authors' laboratory was 3·8%, and they state that it should be suspected in middle-aged or old patients with atypical encephalitic syndromes.

The Palmo-Mental Reflex.

JOHN R. BLAKE AND E. C. KUNKLE (*A.M.A. Archives of Neurology and Psychiatry*, March, 1951) have investigated the palmo-mental reflex, which was described thirty years ago by Marinesco as a fleeting unilateral contraction of the chin muscle on stimulation of the thenar eminence of the ipsilateral hand. They have analysed the mechanism of the reflex, its variability and modifying factors, and its clinical value. From their investigations they conclude that the reflex, found in half the normal adult population, presents a remarkable distance from receptive field to area of response. From analysis of its mechanism it is tentatively inferred that the afferent arc uses superficial fast-conduction pain fibres. The pattern of the response suggests a fragmentary wince. The authors state that as has been reported by other workers in the past thirty years, the reflex is commonly, but

unpredictably, accentuated on release from cortical control. It has limited clinical value, but when exaggerated is a useful alerting sign of supra-segmental motor disease.

Epilepsy and Arteriosclerosis.

ALFRED GORDON (*The Journal of Nervous and Mental Disease*, February, 1951) reviews his pathological findings in 12 cases of epilepsy occurring in adult arteriosclerotics. Although he was able to trace epileptic diatheses in some, he states that it is an unalterable fact that all had minute anatomical and histological lesions in the cortex, associated with sclerotic alterations of blood vessels in an advanced age. He quotes and concurs with the postulate of Lasègue made in 1877: "Epilepsy which makes its first appearance after the age of eighteen years should be considered as due to a lesion in the encephalon."

Accidents and Disseminated Sclerosis.

A. E. BENNETT (*The Journal of Nervous and Mental Disease*, March, 1951) discusses the medico-legal significance of accidents in cases of disseminated or multiple sclerosis. He cites cases in which, in spite of insufficient evidence, there was settlement for the claimant. In his opinion there is no scientific evidence either that multiple sclerosis is caused by trauma or that relapses are thereby exacerbated. The cause of an undoubted accident-proneness is the result of a combination of personality changes and neurological handicaps. The patient is euphoric and takes risks in spite of his ataxia and weakness, which should be deterrents. So prone are the courts to award damages to the patient that the author stresses the need for expert medical witnesses acting on a non-partisan basis.

Acromegaly.

MANFRED BLEULER (*The Journal of Nervous and Mental Disease*, June, 1951) discusses the psychopathology of acromegaly and suggests that the psychological and physical manifestations may be part of a common process. The former is characterized by mood swings and lack of initiative. Sexual urges tend to be diminished. Alteration of hunger and thirst are common. The social attitudes are usually characterized by a lack of consideration for the lives and wishes of other people. The findings substantiate those of the Burghoelzli Clinic in Zurich. The author discusses the possibility that alcoholism may be associated with some cases of subpituitarism; derangement of the thirst mechanism suggests such a possibility.

Homosexuality Among University Students.

BENJAMIN H. GLOVER (*The Journal of Nervous and Mental Disease*, May, 1951) analyses a group of 52 subjects of sexual deviations, aged from seventeen to forty-two years, among university students and selects twelve as true homosexuals—overt performers of deviant sex practices with their own sex by reason of personal choice, without coercion, with enjoyment. He states that a city square at night is the favourite place for picking companions. Subsequent approaches are furtive; several occur before homosexual intercourse. The process is an amour. Love is a commonplace word among such people. Discussing treatment, the author states that the use of oral methyltestosterone therapy is unsatisfactory; although taking away the compelling drive it does not change direction of the sex gratification. His own method is by direct psychotherapy in an endeavour to reeducate the individual to a permanent change in habits. The ambivalency of sex is discussed with the patient. An effort is made to desensitize the patient to his belief in the enormity of his problem. He is encouraged in confidence and advised as to competitive sport and the planning of his life. The author stresses the difficulty of treatment. Only one of his selected subjects has made significant improvement in one year.

Migraine and Sleep Rationing.

MATTHIAS GANS (*The Journal of Nervous and Mental Disease*, May, 1951) has evolved a thesis that the cause of attacks of migraine must be sought in excessive sleep. As a prophylactic measure he keeps the patient in hospital for four weeks and rouses him from his deep slumber at appropriate times. The author supports this procedure with dietetic and other therapeutic methods.

Dandy's Striatal Theory of the Centre of Consciousness.

RUSSELL MEYERS (*Archives of Neurology and Psychiatry*, June, 1951) states that Dandy, in 1930, thought that the centre of consciousness in the human brain was in the left frontal cerebral hemisphere. He based this conclusion on the fact that ligation of the left anterior cerebral artery produced a state of unconsciousness in his patients. Later it was found that this artery could be ligated and the patient remain conscious. Dandy then suggested that the centre of consciousness was in the anterior part of the *corpus striatum* and produced some evidence for this. The author operated on 47 patients at the level of the basal ganglia and found that the operation was not followed by loss of consciousness. He concludes that the anterior striatum theory of the centre of consciousness is improbable.

Clinical and Physiological Studies in a Case of Myokymia.

H. HOLLAND DE JONG, I. A. MATZNER AND A. A. UNGER (*A.M.A. Archives of Neurology and Psychiatry*, February, 1951) report studies in a case of myokymia or *myoclonus fibrillaris multiplex* (Kny, 1888). The patient, a male subject, aged forty-seven years, had a gradual onset of cramps and fasciculations in calves, thighs and arms, after exertion, with excessive sweating and cyanosis of the feet. The authors carried out electromyograph tracings, spinal anæsthesia, muscle biopsy and local nerve blocks during investigation. They stress the differential diagnosis between myokymia and fasciculation as important, and state that in myokymia the distinguishing factors are a constant rhythmical discharge rate, absence of effect of "Neostigmin" on rate or frequency of discharge, absence of effect of quinine on activity, elimination of activity with peripheral nerve block and spinal anæsthesia, cramping of muscles and normalcy of motor end plates. They conclude that myokymia should be considered as a separate entity with a probable ætiological focus in the anterior horn cells, but that further study is needed to prove or disprove myokymia as an actual disease entity.

Effects of Decamethonium Bromide and d-Tubocurarine on Electroconvulsions.

L. H. MARGOLIS, A. SIMON AND K. M. BOWNAM (*A.M.A. Archives of Neurology and Psychiatry*, February, 1951) have studied the relaxation effects of decamethonium bromide and *d*-tubocurarine on 50 patients receiving electroconvulsive therapy for psychiatric disorders. They state, comparing the two drugs, that the curarizing effects were similar in 66% of cases. In 20% of cases adequate relaxation was obtained with decamethonium bromide, but respiratory distress occurred with *d*-tubocurarine; in 14% of cases no relaxation without respiratory distress could be obtained. Whatever "curarization" could be obtained with decamethonium bromide could also be obtained with the alternate drug. There was no relation between tolerance to one drug and the other in the patients, nor between age and weight and adequacy of response. No complications (fractures *et cetera*) were produced, even with insufficient dosage. The authors conclude that decamethonium bromide is superior to *d*-tubocurarine in its absence of histamine-like side effects, shorter duration of paralysis and less respiratory distress during intense relaxing dosage.

Prognosis After Topectomy and Lobotomy Relative to Body Type.

NATHAN S. KLINE AND ASHTON M. TENNEY (*A.M.A. Archives of Neurology and Psychiatry*, March, 1951) state that a relationship has been noted between the prognosis after lobotomy and topectomy and the patient's classification in Sheldon's somatotyping scale. Their report deals with 29 male schizophrenics on whom either topectomy or lobotomy was performed. They concluded from their observations that if the patient was predominantly a mesomorph the prognosis was more favourable, regardless of operative procedure. Of the 13 non-mesomorphs in their series only one was well enough for discharge from hospital after operation; on the other hand four out of five mesomorphs were discharged. The authors consider that operative procedures on non-mesomorphs should be undertaken with caution.

Effect of Electroshock on the Blood Pressure of Psychotic Patients.

WALTER W. IGERSHEIMER AND JAMES A. F. STEVENSON (*Archives of Neurology and Psychiatry*, June, 1951) state that blood pressure changes following electroshock are the same in patients irrespective of psychiatric classifications. The immediate effect is the same as that found by other authors, namely, a rise with a fall to the pre-shock values within twenty minutes. The delayed effects are as follows: systolic and diastolic hypotension is present after six or ten electroshocks; thereafter both systolic and diastolic pressures tend to return to pre-shock levels.

Special Articles for the Clinician.

(CONTRIBUTED BY REQUEST.)

II.

FITS AND FAINTS.

THE value of holding a resident medical officership in a good hospital cannot be over-rated. Perhaps the old system of apprenticeship with a good general practitioner was, in some ways, almost as useful in giving common sense and confidence to a young doctor. It is in such surroundings that he gains a real practical knowledge of his profession, with the countless incidents and emergencies of practice, and how to deal not only with patients but with their friends. Among such incidents do fits and faints occupy prominent positions.

Fits and faints may happen anywhere and at any time, not only in the out-patient department, but at home, in the street, in church or in "the haunts of the sinful and gay"; often, indeed, in embarrassingly public places. There our young doctor must show knowledge quickly applied, and common sense in his diagnosis and treatment—not alone, indeed, but with many curious eyes upon him, when he is rightly expected to show his mettle and to act quickly.

In some cases he may be lucky enough actually to see the fit or faint, and that may suffice to settle the immediate diagnosis. But here he must try to be sure it is not due to a vascular cerebral lesion—"a stroke", indeed. So he must look out for any palsy and its distribution, or for one of the signs of a cerebral neoplasm. I shall refer later to this point.

I do not propose to discuss the wider meaning and causation of fits or faints.

In this simple paper a fit is just a neural explosion, due to many diverse conditions, organic and lasting, or functional and reversible. Faints on the other hand are primarily cardiac vascular incidents, due to diverse upsets of the even action of the heart, and consequently of the blood supply to the brain.

These views do not commend themselves to me as convincing examples of modern physiology, but they are good enough for the out-patient department, or its equivalent *milieu*.

Is it a Fit or a Faint?

Let us consider fits first, or, as they are often called, "convulsions".

Pages might be filled with the causes which may account for such alarming explosions; and the doctor ought to have a bowing acquaintance with most of them, and, at the moment, with some of the commonest and most important causal conditions, one of which probably is affecting the patient before him. Above all, can he decide whether it is a fit or a faint?

Fits are "thrown" at all ages, and by persons of both sexes. They are nearly always genuine, but they may indeed be counterfeited by the cunning art of the malingerer. Drugs as well as disease may be the causal factor; alcohol, strychnine, belladonna and others, even insulin, in more than needed doses may start a fit and an unconscious state.

I have no doubt that one could recall perhaps thirty conditions, any of which may have caused the seizure before you. Indeed, the question of cause may be put aside for a quieter moment; but even then you should look for signs of trauma.

There may be nothing very suggestive or convincing of existing disease in the aspect of the patient. If he is in convulsions, note their character and sequence. Are they general or local? Are they clonic or tonic? Is he insensible to painful impressions? Are his violent movements purposeful or otherwise? Test his reflexes. Has he bitten his tongue or lips? What is the state of his pupils? Do they react to light? Has he involuntarily passed urine or fæces? What about his respiration, and especially his pulse? If the pulse is full, hard or bounding his insensibility is not likely to be a faint.

See that his airway is free and his mouth empty, and that there is no bolus stuck in his gullet. Test his temperature with your hand. Loosen his collar and shirtband. Keep him from hurting himself or damaging his "first aid" helpers, who should try to avoid getting bitten in efforts to open his mouth.

Wait till "the tumult and the shouting die" and get him into a quiet resting place, where you have time to glean his history and overhaul him with a gathered mind, and so evaluate his signs and symptoms and make a reasoned diagnosis.

People who have the deplorable handicap of having fits do not often die in them. At least plain epileptics do not. But there are, no doubt, patients who do die; but nobody can blame you if that happens. Oddly enough I have never heard of a man having a fit while on horseback. I used to comfort epileptic boundary riders by telling them so, although I have been told of a case in which a poor fellow had a fit while swimming.

I dare say many of us remember tales of cunning people who "threw" well-simulated fits with a card sewn in their waistcoats, and on it were the words: "I take fits; brandy brings me to."

In all cases, try to be sure in your final diagnosis, for it is a hard fate to label a man as an epileptic when in truth his "convulsions" might have been occasioned by some innocent passing cause.

I now turn to the matter of faints. These occur, I think, more often in young people, notably in girls. Their import is less alarming in youth, while in the aged, faints are more likely to connote some structural defect in the cardio-vascular system, and should make one specially careful in assessing their import.

Faints may result from even still larger numbers of possible causes than I mentioned in regard to fits. As I write, "with memory holding the door", I believe I could muster forty reasons given for the faint—some too quaint even to mention in the sedate pages of this journal; some very common—some not so.

Some faints are just play-acting, and the element of hysteria comes strongly in, in many aberrant cases, for hysteria, like syphilis, is a master artist in simulating other diseases.

But the subject of faints has often some useful stigmata to help the diagnostician.

Age and sex are important; also the absence of any outstanding definite ailment, such as cardiac lesions and so on. Note the pupils—they are often dilated; the cornea is more often still sensitive than not, and not always is there complete flaccidity, or any obvious local palsy. The respiration is sometimes irregular; but, above all, note the condition of the pulse and heart sounds; the pulse is small, faint, thready, perhaps even hardly palpable, without relaxation of the sphincters or any biting of the tongue, which truly must be rare indeed. The temperature is normal or the patient is even chilly to the touch. Dentures had better be removed, especially in patients with fits.

Here, as with fit patients, you will see that the mouth is empty and the air passages free. Loose all clothes from the neck to the abdomen; let waist and neck be quite unhampered. Keep the head low at first till consciousness returns. Get the patient into warm, comfortable surroundings. Flick the thorax with cold wet towels—but otherwise let her or him be kept warm, and let her sniff fairly pungent smelling salts.

As soon as she is capable of doing what she is told, let her be given a glass of some hot liquid with a little alcohol or aromatic spirits of ammonia in it, and let her be made to swallow the fluid—not in ordinary gulps, but slowly in sips, with deliberation. It is quite remarkable how the act of deglutition seems to be an active stimulant to the heart to function normally.

In Victorian days there was a kind of cult of delicacy. The pathetic picture of the "Queen of the May", even her of whom Tennyson sang, was wrongly admired—the delicate girl with a short cough, who tired easily, and whose flushed cheeks deceitfully painted a ruddy hue of health, instead of it being a hectic flush—"Death's disastrous Rose", and truly a sign of sorrowful import. She, too, was one of those who fainted. Now, even in these wiser days, the "spot on the lung" is diagnosed early, and happily her tuberculous process is often arrested.

Another maiden of fifty years ago who also was of the fainting sort was the girl with chlorosis—a vanished disease, and even the name is often absent in modern text-books on medicine. A glance at her sufficed for recognition of a very simple form of anæmia. She was plump, well nourished, breathless, and often of a greeny-yellowy complexion; often, after a while, she was amenorrhœic and constantly costive; her diet was not wisely chosen. I think she was inclined to be temperamental and troublesome, and to eat rubbish in furtive snacks. One may well ask oneself incidentally why

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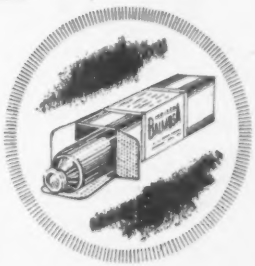

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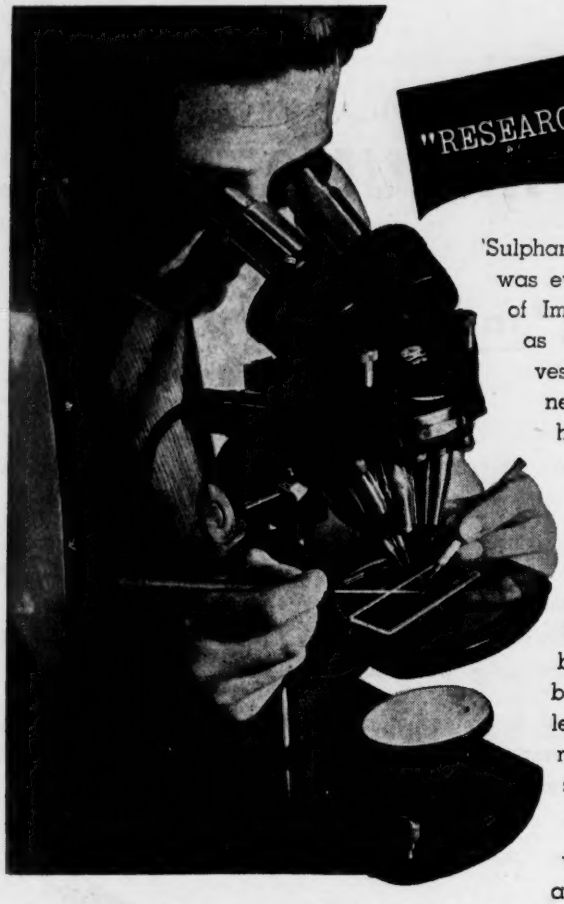

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the chlorotic girl has disappeared. What caused her blood dyscrasia?

I think the answer is that the modern, emancipated, out-door girl leads a more healthy and natural life. She takes part, and often excels, in almost every kind of out-door exercise and sport. Tight-lacing, I think, has nearly gone. More wholesome food is eaten and enjoyed. It is not wicked or bad style to like a good meal! Women eat more iron-containing food than they did, and considering their monthly losses of blood, they really need such food more than men.

Constipation is dealt with successfully, and a kindly common-sense view is taken of the handicap of difficult menstruation of many girls between fifteen and twenty-five years of age. Also the doctors of today are wiser, or at least more learned, and in most ways better than the clinicians of the last century. They know much of endocrinology, and much intricate knowledge of blood disease.

But those old doctors knew all about Blaud's pills and Griffiths's mixture. How often did a bright young general practitioner burst into parochial fame by giving some chlorotic girl huge doses of Blaud's pills, and thereby changing a plump, greenish, fainting costive young person into a wholesome, ruddy, happy girl, no longer just "Faintin' at anythink". What a chance for a blameless righteous advertisement!

I think Arbuthnot Lane would have been sure that chlorosis was due to auto-intoxication from an habitually unemptied large bowel, which judicious use of purgatives often cured. I fancy it was wise old Sir Andrew Clark who said, if in these cases he had to choose between iron and aloes, he would not seldom prefer the latter. This belief was largely shared by the laity.

I remember the merry tale of the trust the famous Norman Macleod had in sufficient evacuation, not only in cases such as those to which I have referred, but in the more sombre maladies of the spirit, where, indeed, certain of his parishioners, in that Misty Island where Macleod adorned the pulpit, took too dark a view of the fate of sinners which, like themselves, was certainly made less black by the judicious use of *Oleum Ricini* and "Pil Col Co", which treatment he saw that they got—remedies in great vogue in the latter half of the last century.

I recall with amusement the story told me by a once young budding consultant, who was called to make a long journey to see the spoilt daughter of a prosperous house. She was a sick, short-winded girl, with a greenish complexion and plenty of "vapours". He stayed about a week, when it was not really necessary, and he gave the patient aloes, sulphate of soda and Blaud's pills—lots of them. The patient recovered, but the doctor succumbed. Yes; all was well in the end, and the malady did not recur.

And, now, to end this artless account of two common events of the professional day. Remember that a fit in early life may be the first manifestation of epilepsy, but also that a fit or convulsion in very early life may be the counterpart of a rigor in later life, announcing the advent of an acute infection.

Again, remember that faints in early life often mean little—while faints in later years are to be taken seriously, for they may be a manifestation of decay of vital systems.

With fits in later life, remember that they may be the signs of some grave condition like general paralysis of the insane or a cerebral tumour or disseminated sclerosis.

Finally, in fits or in faints you ought to correct your first impression by subsequent knowledge of the history of the patient, and you ought carefully to examine his physical condition. Perhaps you will be gratified at finding that your first view of the condition was substantially right, and that you had differentiated correctly these two common blackouts—which is well for the patient and for your own credit's sake.

R. SCOT SKIRVING,
Sydney.

British Medical Association News.

SCIENTIFIC.

A MEETING of the New South Wales Branch of the British Medical Association was held at Broughton Hall Psychiatric Clinic, Leichhardt, on November 22, 1951. The meeting took the form of a series of clinical demonstrations and discussions by members of the medical staff of the clinic.

Chronic Alcoholism.

DR. D. C. MADDISON discussed the use of "Antabuse" in the treatment of chronic alcoholism. He said that "Antabuse" (tetra-ethylthiuram disulphide), which had been in clinical use since 1948, was a most useful ancillary aid in the treatment of the chronic alcoholic. Its major application was for the so-called "habit drinker", but even when the alcoholism was seen as a secondary factor to environmental and social stresses, personality defect or even frank neurotic disturbance, a good symptomatic result was often obtained. In many cases it might be found necessary to combine it with other physical treatments, such as electroconvulsive therapy or subcoma insulin therapy, and that could be done without risk. In all cases psychotherapy was essential, and environmental manipulation must be attempted when that seemed indicated.

Dr. Maddison then said that "Antabuse" should always be administered under medical supervision, and with certain rare exceptions in a psychiatric hospital. The reasons for that were twofold: (i) The treatment itself was not without risk if inadequately controlled. (ii) The patient needed to be removed, for a short period at least, from temptation, and also from any social causes which might be agravating his condition. Moreover, the group spirit which resulted from seeing others undergoing the same treatment was decidedly helpful. The first essential in administering "Antabuse" was that the patient should have a sincere desire to stop drinking. Without that he would soon learn that he had only to stop taking his tablets for a few days for the unpleasant effects of alcohol to cease; it was essential that he should understand that, and realize that all the treatment could do was to give very substantial aid in his battle. Any attempt to give "Antabuse" unknown to the patient, or to force the tablets onto an unwilling victim, was bad psychologically and so much wasted therapeutic effort. The sphere of action of the drug was thus strictly delimited.

Dr. Maddison then went on to describe the routine system of administration of "Antabuse". He said that after observation of the patient for twenty-four to forty-eight hours, during which a thorough psychiatric history was taken, "Antabuse" was exhibited in the following doses: first day, 1·5 or 2·0 grammes; second day, 1·0 or 1·5 grammes; third day, 1·0 or 1·5 grammes; fourth day, 0·5 or 1·0 gramme. The larger doses would usually be found necessary for patients above average weight or for those whose regular alcohol intake was particularly excessive. On the fourth day the test drink was usually administered; it seemed decidedly advantageous to make this a group test whenever possible. No measured dose of alcohol could be relied upon to produce a reaction, and provided that he was under continuous observation, it was best to let the patient drink until he felt that he had had enough. Overproof rum was used in the clinic; the usual requirement was two average drinks, no patient wanting to persist past his third.

Dr. Maddison said that the reaction was variable, but in a successful test most of the following features would be present: (i) intense erythema of the face and neck, with a subjective sensation of great heat, injection of the conjunctival vessels with œdema in the loose connective tissue under the eyelids being usually most noticeable (ten to fifteen minutes after the test); (ii) pronounced tachycardia, the pulse rate rising to 140 per minute or more (ten to fifteen minutes after the test); (iii) extreme nausea with subsequent vomiting (thirty to sixty minutes after the test); (iv) pulsating headache and palpitation (thirty to sixty minutes after the test); (v) in a severe reaction, disappearance of the erythema, facial pallor, fall of blood pressure, symptoms of cerebral anoxia and sometimes syncope. Dangerous reactions were described in the literature, but had not been observed at the clinic with the routine described. They included profound shock, convulsions and cardiac arrhythmia, and a fatal case had been reported, though it was noteworthy that the treatment in that case had been carried out with the subject as an out-patient. Usually after one and a half to two hours the worst was over; the patient was left with an intense "hangover", but usually slept for several hours, and on awaking felt in his usual health. The symptoms of the reaction had been shown experimentally to be due to a raised blood level of acetaldehyde, which was excreted via the lungs and gave the patient a characteristically unpleasant odour.

Referring to the question of maintenance dosage, Dr. Maddison said that it would usually be found that 0·5 gramme daily was inadequate to maintain the "Antabuse" concentration sufficiently high to produce the reaction described when alcohol was taken; occasionally 1·0 gramme would be necessary. The patient was advised to take his tablet with his breakfast, and in that respect it was usually

wise for him to take his wife into his confidence. How long such a maintenance dose should be continued depended largely on individual circumstances, but three or four months should be regarded as the minimum; regular contact should be made with the medical adviser throughout that time. Continued "Antabuse" administration as described produced no side effects in the vast majority of patients. In one case he (Dr. Maddison) had seen a mild hypomanic reaction induced; it subsided promptly on cessation of administration of the drug. One patient had complained of diminished sexual potency, but the complaint was transient. Excessive fatigue had been reported in the literature as a common complication, but none of the patients at the clinic had complained of that symptom. In general, Dr. Maddison concluded, it could be said that "Antabuse" was an effective and—granted adequate medical control—a safe treatment for a limited class of chronic alcoholics. He stressed the fact that it had to be combined with psychotherapy, or with physical treatment, or with both, as the requirements of the individual case determined.

DR. GUY LAWRANCE then presented a married woman, aged fifty-seven years, the mother of one child, who had been admitted to the clinic in August, 1951, because she had been drinking to excess for a long time. She was an Estonian. Her drink had been successively vodka, brandy and beer, wine and methylated spirits. She was rarely sober. Her memory had been very faulty and she had been confabulating. For example, she said that she had been in Australia for two years, although actually it was twenty-three years. She said that she had come to Australia in 1972, and she denied that she had ever had more than two small glasses of ale per day. She gave a very poor account of herself, and on arrival at the clinic was totally disorientated for place and time. Even at the present time she did not know the names of the nurses and doctors whom she addressed daily. She was not taking much food, and she could not sleep. Her emotions were labile and she laughed and cried over the same experiences. Her gait was very unsteady, and she dragged her feet when she walked. Her calves were tender on pressure, her knee jerks were lessened, and her ankle jerks were absent. Thus she exhibited a confusional state of mind associated with polyneuritis; in other words, she had Korsakow's syndrome. Dr. Lawrance said that she had been given a full course of vitamin *B*, extra food, massage when the tender limbs allowed it, and rest. She was still confused, restless and over-emotional and had to be in a single room. In spite of that, she probably had a very fair prognosis, because the nervous tissues took a long while to reestablish their proper functions. One factor which might serve to delay full recovery was her high blood pressure, but the radial vessels were soft-walled. It had been found that hyperpietics did not seem to recover so well from alcohol once a disaster had happened as in the present case.

Another patient presented by Dr. Lawrance, a married woman, had been admitted to the clinic on May 28, 1951, because for about a year she had been having periods of amnesia following drinking parties. She had been confused and deluded, especially at night, when she often screamed for hours. Her memory was very defective for events both recent and remote, and she was disorientated for time and place. She was anergic and uninterested. Dr. Lawrance said that the patient had been a premature baby, and as a child had been very delicate and much dominated by her mother. Eventually she had become a clerk and fallen in with bad company. Since then she had been drinking. At first she only took beer, but while her husband was at the war she drank heavily, mainly taking cheap wine. She had been arrested on several occasions, but finally the police took her to her home, and she then sought treatment at the clinic. She believed that she was dead and in purgatory. She had painful peripheral neuritis, and her calf muscles were very tender on pressure. The diagnosis was considered to be Korsakow's psychosis. Dr. Lawrance commented that Korsakow's psychosis was believed to be due to a condition of avitaminosis with loss of the antineuritic factor *B*. The condition could pass on to destruction of neurons, due to the alcohol in the blood, and so to deterioration of the mental faculties. A long period of treatment for the patient was indicated. She had had a course of vitamin therapy and sedatives. The peripheral neuritis had at last cleared up, but her mental condition recently had been very bad. More recently still that phase had passed and she had become more socially amenable, but the general trend was not good. She would be kept at the clinic a little longer, in the hope that the condition was one of continued confusion and not permanent dementia. She was receiving vitamin *B*, extra nourishment, massage and rest.

Paraphrenia.

DR. H. J. PRIOR presented a married man, aged forty years, the father of four children, who had been admitted to the clinic in August, 1951, because for some time he had expressed ideas that his second and third sons were not his own. He said that the sons respectively resembled two other men, whom he named. He based his suspicions on what he described as his "extra-sensitive perception", a form of mental telepathy that he had possessed all his life. He said that it was difficult to know whether people said things or thought them. He had obtained information about his sons' paternity by reading his wife's thoughts. He had also read other men's minds. He had various delusions about his wife's unfaithfulness, and believed that she gave him "strong dope". He thought that she wished to kill him, and said that when he mentioned it to her a look of terror came into her eyes. The climax had come when the wife told the boys of their mixed paternity; this he had heard by his "extra-sensitive perception", not by his real hearing apparatus. Even in the clinic the "extra-sensitive perception" was present. Dr. Prior said that the patient's delusions were strong and unshaken, and his hallucinatory efforts were constant. He lacked insight into his illness. His parents had been average normal persons, and his early life had been happy. He had shown pronounced evidence of mother fixation, and he had clashed with his father. He had made good as a farmer. His sex life had included premarital intercourse, one post-marital episode about which he felt guilt, and persistent masturbation. He blamed his wife for forcing *coitus interruptus*. He was a moderate social drinker and a keen fisherman, was fond of horses and "trots", belonged to a peculiarly male society, and exhibited a repressed homosexual trend. Dr. Prior commented that the patient's condition was a well-established state of paraphrenia in a man who was mother-fixated and in general a man's man. He had had some electroconvulsive therapy to help relieve a mild depressive tendency. He was probably projecting his own sexual guilt onto his wife. The prognosis was not very good, as paraphrenia was a progressive disease. The symptoms might become quiescent, but in all probability they would burst out again in full and excessive manner.

The second patient with paraphrenia presented was a married woman, aged fifty-six years, with five children. She had been admitted to the clinic in October, 1951, because for some time she had felt that no one wanted her, and she said that people were shunning her. She felt that there was a plot to kill her, and that everything referred to her, including motor-car numbers and wireless messages. She had been frightened to speak for fear someone overheard her, and even the birds spied upon her. She had had auditory and visual hallucinations, and had been depressed as a result of all her troubles. She had been brought up in a strict home, and had been carefully chaperoned during courtship. However, she had had as good a childhood as could be hoped for with her fifteen siblings. When coming to Australia to marry, she had been raped on board ship by a German. That fact had been always carefully concealed, but it had put her against men, and intercourse had been repulsive to her since. In addition, she had caught a Neisserian infection from her husband. Her menopause had occurred five years before the time of the meeting. Her condition was one of paraphrenia associated with depression. Her experiences in life had been at variance with her early training. She was cold to her husband and doubted his conduct at times, and she had had a great shock when a married daughter had had a miscarrigae in 1950. It was possible that heavy guilt about the secrecy of her rape was having its effect in causing her to project fears onto others at the present time.

Dr. Lawrance presented a single man, a labourer, aged forty-four years, who had been admitted to the clinic in January, 1951, because for a year he had felt that everyone at work was talking about him, and saying secretly that he was a pervert. He thought that the idea had gradually spread to people outside. Finally the job had become unbearable, and he had come to Sydney for relief. He had been sleeping badly, felt weak and had anorexia. He intended working in Sydney when he was well, as thus he would avoid his former workmates in another town. Dr. Lawrance said that the patient had been strongly fixated upon his mother, and had been very upset when she died in England in 1947. His only brother had been killed in an aircraft accident two months before his admission to the clinic, and he had no idea where his father was. He had left England twenty years before and had not been back since. He remained single, and women did not attract him unless for the passing pleasure of the moment. None of them measured

up to the maternal standard. He said that he wished to be unentangled so that he could return to his mother in Durham at any time. He had been a very heavy drinker for years, but for thirteen months he had abstained. Electroconvulsive therapy had removed some of his depression, and he had had his gall-bladder removed since. His worry and idea of persecution were much less.

Dr. Lawrance then presented a married woman, aged forty-one years, who had been at the clinic for five months in 1948 because she had delusions of persecution and auditory hallucinations and was very suspicious. She had told of an incident when she had felt uncontrollable sex urges, which she got rid of by touching women and fondling them. She said that she could influence other women sexually by looking at them. She had messages of hallucinatory nature which she would not mention. At that stage her husband was to be divorced for alcoholism. She had been given electroconvulsive therapy, and had gone home relieved. Recently she had been readmitted to the clinic. She had been living with her husband and child. She said that her husband approached her sexually to please the psychiatrists at the clinic, who influenced him in that direction. She avoided his attention when possible, as he was frigid and had an unbearable smell upon his lips. (That belief was in fact hallucinatory.) She said that she felt a peculiar tension, which she believed emanated from Broughton Hall and was directed to her by the doctors. She felt compelled to return to the clinic. Thus she had persecutory delusions and audible and olfactory hallucinations. She lacked insight into the falseness of what she believed. She was unable to do her work properly at home, being excessively meticulous and suspicious. Everybody was against her and was helping the husband. Examination of her background showed that she had had an intense mother fixation, and her early home life had been abnormal, as her parents quarrelled seriously. She was very tidy in her dress, and what she did in hospital was well done. Her delusions of persecution at the hands of her husband forced her from home, and that fitted in well with the delusions that she was dragged back to the clinic by some influence used by the psychiatrists. Treatment, such as electroconvulsive therapy, had had no effect on her, but it was hoped that her symptoms might fade during her absence from home. She was evasive, suspicious and not easy to interview in her present condition. Otherwise she was a very cooperative and useful patient. She had been raped at the age of ten years. The prognosis was ultimately very bad.

Puerperal Psychosis.

Dr. Lawrance presented five patients suffering from puerperal psychosis. The first patient, a married woman, aged thirty-one years, with three children, had been admitted to the clinic in September, 1951, because since the birth of her third baby some months previously she had lost her interest and had become apathetic. Some depression had occurred, with the loss of proper affect, especially towards her husband and children, and on several occasions the sight of a knife had disturbed her a great deal. She had experienced feelings of unreality and a floating sensation. Finally she had become unable to do the housework, had attacks of crying, which was uncontrollable, and went to bed because she could not think. She was the eldest of five siblings and had had to accept house responsibility as a child. At the age of seventeen years, on her mother's death, she had had to look after her father and seven other people. At the age of nineteen years she married. Her brother was killed the day before the wedding. The third child had not been wanted. Her husband had practised *coitus interruptus*, which had upset the patient, and the subsequent pregnancy had worried her, setting up a depressive state. The condition was by no means clear cut, and there had been schizoid elements present. Dr. Lawrance commented that the death of the patient's mother, who was living with her, and the fatal accident to her only brother, had given her serious setbacks. She had felt unable to care for the husband and two children, and the arrival of a third child had been too much for her. She had then made a retreat from her difficulties. The condition had no clear-cut ætiological factors, and was indicative of general weakness in the patient's mental integration.

The second patient of the group, a married woman, aged twenty-eight years, with three children, had been admitted to hospital in September, 1951, because for several months she had had a great fear that she would hang herself. She was depressed and suffered from intense headaches. She was the youngest of sixteen siblings, and had had a fixation on her father. Her mother had been nervy and difficult. Three of the brothers had committed suicide by hanging, and a fourth by casting himself under a train. She had married at the age of twenty-one years, and her husband treated her very well, but because of housing difficulties the parents and three children had all slept in one small room. She had had a frightening experience of attempted rape some years previously, and had been "nervy" for a long time. After the birth of her last child the symptoms had become strongly overt, and she had been compelled to seek medical aid. Dr. Lawrance said that in view of the very bad hereditary factor, it was only reasonable to guard the patient's life. Of the methods of suicide hanging was one of the most difficult to prevent, as it did not call for special preparations. The case served to show the importance of hereditary factors, because four suicides in one family indicated a great weakness in the hereditary psyche. In the present case chemical contraception was being used.

The third patient in the group was a married woman, aged twenty-nine years, with two children, the younger being aged eleven weeks. She had been admitted to the clinic in September, 1951, because for three weeks she had been very depressed and retarded, with phobias that she would harm the baby or herself, and that she had cancer. She had been fatigued and lacking in interest, and had suffered from insomnia and anorexia. She said that she just could not help worrying over little things, and felt that she was incurable. She felt that she was insane. Her early life had been happy, and she had had a reasonable education. At the age of twenty-two years, when she was still single, she had had a child by another man while her fiancé was a prisoner of war in Germany. At the age of twenty-four years she had married, and had been "house-proud" and fussy. She had been in Australia for five years, but was now homesick for England. Her husband was good to her, and her home life was happy. She had had a previous breakdown at the age of twenty-two years. Her fears were that she would commit suicide, would harm the children or husband, would never get better, would be placed in a mental hospital, and would be left alone. Those constantly recurring thoughts had really obsessive status at the present time, but it was hoped that the tension would ease. The depressive element was strong, and the patient had had a course of electroconvulsive therapy, which had eased matters considerably. The case indicated that a previous mental breakdown might be followed by a puerperal illness at a later date.

The next patient with puerperal psychosis was a married woman, aged thirty years, who had been admitted to the clinic in October, 1950, a few weeks after her first confinement. During the pregnancy she had developed fits of depression, and after the confinement matters had become worse. She suffered from insomnia, was disturbed by the least noise and had short periods of amnesia of about an hour's duration. Her legs felt weak, and at times she could not stand. She feared trains, and said that she had a strong urge to commit suicide while in one. She had not wanted to feed her baby, but her husband insisted. A course of electroconvulsive therapy relieved her tension, and she insisted on going home to mind the child. Her father had been a hard man who kept all his daughter's wages when she went to work, and her mother was neurotic. She was reasonably well educated and became a good singer and was rather religious. She had had a great shock because her father had made repeated sexual advances to her and had once attempted to rape her. She had married at the age of about twenty-seven years, seeking love. Her husband had turned out to be a rather difficult alcoholic, who was, however, a good provider for his family. She had talked loudly about having many children, but really did not want her first child, because she had to give up her business career. Subsequently to her first admission to the clinic she had again become pregnant, and therapeutic abortion was carried out by a gynæcologist after consultation with a physician. Recently she had been readmitted to the clinic in an anxious and depressed state, with fatigue, anorexia and inability to carry out her daily tasks. Dr. Lawrance commented that the case showed that therapeutic abortion itself could be a powerful agent, capable of destroying as well as curing. The patient had had a course of "Somnifaine" therapy to calm her while she was waiting her turn for subcoma insulin or carbon dioxide and oxygen gas therapy. The Rorschach test showed the patient to be a typical admixture of anxiety and hysteria, without the sometimes accompanying obsessions.

The last patient in the group, a married woman, aged thirty years, with five children, had been admitted to the clinic in September, 1951, because seven days before the birth of her last child, who was now two weeks old, she had

behaved peculiarly. She said that she had not engaged a doctor, when she had, and expressed the hope that the baby would die. She ate very heavily in order to bring about that result. She cried a lot, said that nobody wanted her, and told the children not to talk to their father because he was mad. After the baby was born, she expressed a delusion that her husband was dead and that he had twins. The voices said that the baby was dead, that the husband had been killed, and that she was to go out in a car in the street. She had some degree of insight into the falseness of the ideas, but was very anergic and depressed. She was the eldest of six children, but had had no hand in rearing the others, as the mother was dominant and efficient. The home life had lacked affection. She had married early, but almost at once her husband had gone away with the Royal Australian Air Force. Later he had begun to drink and to have relations with other women, including her sisters. He was keeping several illegitimate children, including one by a sister of the patient. Her parents did not think she should leave him, as they did not wish to have the responsibility of her with the five children. Dr. Lawrance pointed out that the illness was present during the pregnancy, the pregnancy was not desired by anyone, and the patient's five children were all the products of faulty *coitus interruptus*. Features of the case were a rapid series of pregnancies, none really wanted, a very unkind husband who was an adulterer in a big way, poor housing conditions, and failure of her parents to assist in any way. Those factors were enough to cause a breakdown in any woman, especially one who had been seeking affection all her life. She was having electroconvulsive therapy, and the results of that were being awaited.

(To be continued.)

Out of the Past.

In this column will be published from time to time extracts, taken from medical journals, newspapers, official and historical records, diaries and so on, dealing with events connected with the early medical history of Australia.

MEDICAL ETHICS: THE PROFESSION AND THE TRADE.[1]

[*Australian Medical Journal* (Editorial), August 2, 1847.]

One of the conditions insisted on by those who have advocated the subject of medical reform is the separation of the practice of the profession from the trade in medicines.

The least objectionable, and indeed, in most cases, as in country practice, necessary connection of this kind is, when the medical practitioner keeps a private pharmacy when his own patients only are supplied with the remedies he prescribes. Upon this we have nothing to remark at present. Neither shall we, on this occasion, comment on the undisguised, but not on that account less degrading association in which the regularly educated practitioner keeps a public shop for the sale of drugs and perfumery "wholesale, retail and for exportation" as their advertisements express it, where pennyworths of hair oil and pots of lipsalve are retailed on the same counter with the most scientific chemical compounds and where patent nostrums are found cheek by jowl on the same shelves with the most important medicinal agents. Our present cue is that most disreputable of all these combinations, that secret and unholy alliance between the professing "pure" who disdains to contaminate his hands with the compounding of base pills and potions, and the druggist in virtue of which the former receives from the latter a percentage (amounting to one fourth generally) on the price charged to the patient for the medicines prescribed—the doctor writing his prescriptions on a system of ciphers or hierorglyphics [*sic*] previously agreed on between them so as to make them unintelligible to any other person. We have heard of one practitioner in Sydney who pockets £200 or £300 per annum by such an arrangement. If those who resorted to this debasing scheme were only the younger practitioners just starting in life, who discontinued it as soon as they had obtained sufficient practice to support them, it might perhaps be palliated: but, used, as it is, by the elders among us, and accompanied, as it always is, by the system of "gratuitous advice", it is alike injurious to the junior members of the profession, and to those who are duped into the belief that they are getting the "best advice" at a cheap rate.

Under the "false pretence" of "advice gratis" many persons are lured to resort to the practitioners we allude to, who, under other circumstances, would pay the junior members of the profession for their attendance, and thus it happens that many a deserving young man, who is too honourable to practise such manœuvres to bring himself into notice, is driven from a profession, which he would otherwise adorn, by the deceptious conduct of these cormorants of our body: while the patients who apply to them are liable to have trifling ailments magnified into serious maladies, and to have much more medicine ordered than they really require, because the doctor has a direct interest in making the most of them, and the druggist, having the monopoly of the supply, and, moreover, having to pay the doctor's percentage, has a direct temptation to dispense inferior articles at an enhanced price. The only effectual remedy for this state of things is to be looked for in increased information on the part of the public, and the cultivation of a higher and more honourable tone among the profession. There is, however, one view of the case which, if followed out, might partially check the evil. We have heard it asserted that, in law, a partner in trade is one who shares the profits of a business with another or others. Under the circumstances we have noticed, therefore, the doctor and the druggist are, bonafide, partners, and should either become insolvent, we imagine that a clever lawyer would bring in the other to pay the debts of the firm: and much as we, in general, detest the resort to mere legal technicalities, we should, we confess, rejoice to see this one practically enforced.

[1] From the original in the Mitchell Library, Sydney.

Correspondence.

ANKYLOSING SPONDYLITIS: ITS EARLY MANIFESTATIONS AND EARLY DIAGNOSIS.

SIR: My attention has been directed to an error in my article in THE MEDICAL JOURNAL OF AUSTRALIA, December 8, 1951, page 761. The fifth paragraph on page 762 at present reads: "Rheumatoid spondylitis is the rheumatic condition *par excellence*, in which early diagnosis depends upon the presence of radiographic changes in the sacro-iliac joints, but these changes may be only slight."

Obviously this should read: "Rheumatoid spondylitis is the rheumatic condition *par excellence* in which early diagnosis depends upon radiography. Changes are present in the sacro-iliac joints, but these changes may be only slight."

Yours, etc.,

131 Scarborough Beach Road, Mt. Hawthorn, Western Australia. December 11, 1951.

JAMES H. YOUNG.

THE NOTIFICATION OF TUBERCULOSIS IN NEW SOUTH WALES.

SIR: Correspondence in the journal of December 8 seems to ring a little bell somewhere in the memory . . . a gentleman in a white waistcoat. . . . "Compose yourself, Bumble. Do I understand that he asked for more, after he had eaten the supper prescribed by the dietary?"

Perhaps a council was held, and lots were cast, as a preliminary. One might almost imagine a Minister turning very pale, and horror being depicted on the countenances of the Cabinet in those States which have not discriminated between the notification of tuberculosis and of other infectious diseases.

Are we really so preoccupied with "getting and spending" as to forget that notification is a public duty shared by both doctor and householder—that the privilege (accorded in this State alone) of excluding the health visitor, if accepted, implies the supply of answers to a short questionary—and to ask ourselves merely, how can more milk be extracted from the government coconut?

Notifications of tuberculosis average less than one per practitioner *per annum*. Is there any real reason for demanding a special fee in the case of one infectious disease, even if the benevolent taxpayer, in the shape of the Commonwealth Government, is willing to foot the bill?

Yours, etc.,

Killara, New South Wales, December 10, 1951.

H. WALLACE.

A CRITICISM.

SIR: Whilst THE MEDICAL JOURNAL OF AUSTRALIA has not granted me permission to take up the gauntlet thrown down by Dr. Pitt in his provocative letter of December 22, nevertheless as a reader (though not of every article) and contributor to the journal for the past twenty years, I would like to express a few thoughts of approval of our journal and its editorial policy.

Here in Australia with its comparatively small population, THE MEDICAL JOURNAL OF AUSTRALIA is the voice of the vast body of the profession, general practitioner, specialist, health officer and research worker, *because, apart from it, there are* only the quarterly surgical journal, *The Australian and New Zealand Journal of Surgery*, the new half-yearly journal of *The Royal Australasian College of Physicians, and The Australian Journal of Experimental Biology and Medical Science.* Consequently the journal must publish articles covering a *wide field representative of Australian medicine, so that it is* "a journal of clinical medicine, a journal of scientific medicine and a journal of clinical research", and if it does not satisfy, at least it whets the appetites of many.

"The Rh Types of Papuan Natives" may appeal today only to the hæmatological hierarchy, but tomorrow such research may be the keystone of some important advance applicable to us all. Who of us, for instance, realized the importance of cortisone and ACTH when the substances were first mentioned in the literature? Few of us clinicians will read "The Determination of Sodium and Potassium in Blood Serum" (THE MEDICAL JOURNAL OF AUSTRALIA, December 22, 1951), but I imagine it will be read by all pathologists, biochemist and research workers, and if accepted, the methods will help our own patients.

Nowadays, no one can underestimate the importance of the medico-legal, historical and social welfare aspects of our profession, and hence the value of the publication of the presidential addresses, very few of which are dull and most of which are very stimulating and interesting. Many of these addresses are expressions of British Medical Association policy, an association which always looks after our patients' and our own interests. Who can say that such utterances are redundant or without interest?

Far from being a bad thing, it is a good thing that the journal is a weekly publication, because it allows articles to be published within a reasonable time of submission, as, for instance, the article on the effect of ACTH and aureomycin on cancer in the issue of December 8, 1951. In some of the monthly or quarterly specialist journals, articles may have to wait many months or longer for publication.

Naturally, in such a journal as ours, the standard of the articles will vary, but it is a significant thing that the journal is abstracted in most of the abstract journals of the world, a fact which speaks for itself.

Every recent advance has been published in its columns, either in original articles, current comments, editorials or abstracts.

Having access to an excellent reference and journal library, I can state that THE MEDICAL JOURNAL OF AUSTRALIA compares very favourably with all and more than favourably with most English, American or foreign journals of its type.

Perhaps Dr. Pitt would like to raise a high standard even higher by contributing another excellent article like his "Fibrocystic Disease of the Pancreas", which appeared in the issue of January 24, 1948?

Yours, etc.,

141 Macquarie Street,
Sydney,
T. ROSS.

December 21, 1951.

Congress Notes.

AUSTRALASIAN MEDICAL CONGRESS (BRITISH MEDICAL ASSOCIATION).

THE Executive Committee of the Eighth Session of the Australasian Medical Congress (British Medical Association), to be held at Melbourne from August 22 to 29, 1952, has sent the following information for publication.

DISEASES NOTIFIED IN EACH STATE AND TERRITORY OF AUSTRALIA FOR THE WEEK ENDED DECEMBER 8, 1951.[1]

Disease.	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.	Northern Territory.[2]	Australian Capital Territory.	Australia.[3]
Acute Rheumatism	..	..	..	..	..	..	..	..	..
Amœbiasis	..	..	..	..	..	..	..	..	..
Ancylostomiasis	..	..	1	..	..	..	..	..	1
Anthrax	..	..	..	..	..	..	..	..	..
Bilharziasis	..	..	..	..	..	..	..	..	..
Brucellosis	..	..	..	..	..	..	..	..	..
Cholera	..	..	..	..	..	..	..	..	..
Chorea (St. Vitus)	..	..	..	..	..	..	..	..	..
Dengue	..	..	..	..	..	..	..	..	..
Diarrhœa (Infantile)	..	..	9(9)	..	..	..	..	..	9
Diphtheria	2(2)	4(2)	3(1)	..	2(2)	..	..	..	11
Dysentery (Bacillary)	..	1(1)	..	..	..	..	..	1	2
Encephalitis	1	..	..	..	..	..	..	..	1
Filariasis	..	..	..	..	..	..	..	..	..
Homologous Serum Jaundice	..	..	..	..	..	..	..	..	..
Hydatid	..	..	..	..	..	..	..	..	..
Infective Hepatitis	..	..	..	..	12(8)	..	..	..	12
Lead Poisoning	..	..	..	..	..	..	..	..	..
Leprosy	..	..	..	..	..	..	..	..	..
Leptospirosis	..	..	2	..	..	..	..	..	2
Malaria	..	..	2(1)	..	..	..	..	..	2
Meningococcal Infection	2(1)	3(2)	..	1(1)	..	..	..	..	6
Ophthalmia	..	..	..	..	..	..	..	..	..
Ornithosis	..	..	..	..	..	..	..	..	..
Paratyphoid	..	..	..	..	..	..	..	..	..
Plague	..	..	..	..	..	..	..	..	..
Poliomyelitis	3	8(2)	11(8)	42(22)	3(2)	..	..	..	67
Puerperal Fever	..	..	..	..	..	..	..	..	..
Rubella	..	13(7)	1(1)	..	..	..	..	1	15
Salmonella Infection	..	..	..	..	..	..	..	..	..
Scarlet Fever	25(11)	19(9)	4(3)	1(1)	..	8(2)	..	..	57
Smallpox	..	..	..	..	..	..	..	..	..
Tetanus	..	..	1	..	..	..	..	..	1
Trachoma	..	..	..	..	..	..	..	..	..
Trichinosis	..	..	..	..	..	..	..	..	..
Tuberculosis	45(31)	8(7)	15(9)	5(5)	19(13)	5(3)	..	..	97
Typhoid Fever	..	1(1)	..	..	..	..	..	..	1
Typhus (Flea-, Mite- and Tick-borne)	..	..	..	..	..	..	..	..	..
Typhus (Louse-borne)	..	..	..	..	..	..	..	..	..
Yellow Fever	..	..	..	..	..	..	..	..	..

[1] Figures in parentheses are those for the metropolitan area.
[2] Figures not available.
[3] Figures incomplete owing to absence of returns from the Northern Territory.

Hobbies Exhibition.

In connexion with the Eighth Session of the Australasian Medical Congress (British Medical Association) it is proposed to hold an exhibition of doctors' hobbies. Members of Congress from all States are eligible to exhibit, and any who wish to do so are asked to communicate with the General Secretary of Congress, 426 Albert Street, East Melbourne, before January 15, 1952.

Honours.

NEW YEAR HONOURS.

THE following Australian medical practitioners are among those on whom His Majesty the King has been pleased to confer New Year Honours.

Major-General Samuel Roy Burston has been created a Knight Bachelor.

Air Commodore Edward Alfred Daley and Surgeon Captain Denis Adrian Pritchard have been created Commanders of the Most Excellent Order of the British Empire.

Dr. John Catarinich has been created a Companion of the Most Distinguished Order of Saint Michael and Saint George.

Obituary.

CHARLES DIGHT BARLOW.

WE regret to announce the death of Dr. Charles Dight Barlow, which occurred on December 14, 1951, at Mackay, North Queensland.

CHARLES ERNEST CAMERON WILSON.

WE regret to announce the death of Dr. Charles Ernest Cameron Wilson, which occurred on December 20, 1951, at Adelaide.

JOHN PATRICK HORGAN.

WE regret to announce the death of Dr. John Patrick Horgan, which occurred on December 24, 1951, at Preston, Victoria.

WALTER CECIL McCLELLAND.

WE regret to announce the death of Dr. Walter Cecil McClelland, which occurred on December 30, 1951, at Cessnock, New South Wales.

Nominations and Elections.

THE undermentioned have applied for election as members of the New South Wales Branch of the British Medical Association:

Kennedy, John Anthony, M.B., B.S., 1950 (Univ. Sydney), Lewisham General Hospital, Lewisham.

Whittington, Ronald Ernest, M.B., B.S., 1951 (Univ. Sydney), c.o. Dr. S. A. Railton, 22 Macquarie Street, Taree.

Bryan, Ian James, M.B., B.S., 1947 (Univ. Sydney), c.o. 33 Stuart Street, Longueville.

Thwaites, Cedric Francis, M.B., B.S., 1950 (Univ. Sydney), 55 Manson Road, Strathfield.

Pearson, Bruce Samuel, M.B., B.S., 1950 (Univ. Sydney), 696 Beauford Street, Mount Lawley, Western Australia.

Rosleigh, Ronald Francis, provisional registration in accordance with *Medical Practitioners Act*, 1938-1951, Section 17 (1) (c), 30 Eastern Avenue, Rose Bay North.

Sanecki, Joseph Maciej, provisional registration M.B., 1952 (Univ. Sydney), 433 Maroubra Road, Maroubra.

Stern, Eric, provisional registration M.B., 1952 (Univ. Sydney), Flat 12, 7 O'Brien Street, Bondi Beach.

Macdonald, Colin Bruce, M.B., B.S., 1950 (Univ. Sydney), 22 Yangoora Road, Belmore.

Borkman, Heino, provisional registration M.B., 1952 (Univ. Sydney), 419 Cabramatta Road, Cabramatta.

Frank, Derek David, provisional registration in accordance with *Medical Practitioners Act*, 1938-1951, Section 17 (1) (c), 1 Powell Street, Neutral Bay.

Sturrock, John Barry, provisional registration M.B., 1952 (Univ. Sydney), 12 Juliette Avenue, Punchbowl.

Turek, Moses, provisional registration in accordance with *Medical Practitioners Act*, 1938-1951, Section 17 (1) (c), 44 Gilbert Street, Rose Bay.

Manning, René Lionel, provisional registration M.B., 1952 (Univ. Sydney), Royal Prince Alfred Hospital, Camperdown.

Cull, Francis William, M.B., B.S., 1951 (Univ. Sydney), 9 Ivy Street, Wollstonecraft.

The undermentioned have applied for election as members of the South Australian Branch of the British Medical Association:

Geisler, Frederich, M.B., B.S., 1950 (Univ. Adelaide), 69 Phillis Street, Maylands.

Lowe, Daphne Rae, M.B., B.S., 1950 (Univ. Adelaide), 25 Railway Terrace, Alberton East.

Diary for the Month.

JAN. 15.—New South Wales Branch, B.M.A.: Executive and Finance Committee.

JAN. 22.—New South Wales Branch, B.M.A.: Medical Politics Committee.

JAN. 25.—Queensland Branch, B.M.A.: Council Meeting.

Medical Appointments: Important Notice.

MEDICAL PRACTITIONERS are requested not to apply for any appointment mentioned below without having first communicated with the Honorary Secretary of the Branch concerned, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

New South Wales Branch (Medical Secretary, 135 Macquarie Street, Sydney): All contract practice appointments in New South Wales.

Victorian Branch (Honorary Secretary, Medical Society Hall, East Melbourne): Associated Medical Services Limited; all Institutes or Medical Dispensaries; Australian Prudential Association, Proprietary, Limited; Federal Mutual Medical Benefit Society; Mutual National Provident Club; National Provident Association; Hospital or other appointments outside Victoria.

Queensland Branch (Honorary Secretary, B.M.A. House, 225 Wickham Terrace, Brisbane, B17): Brisbane Associated Friendly Societies' Medical Institute; Bundaberg Medical Institute. Members accepting LODGE appointments and those desiring to accept appointments to any COUNTRY HOSPITAL or position outside Australia are advised, in their own interests, to submit a copy of their Agreement to the Council before signing.

South Australian Branch (Honorary Secretary, 178 North Terrace, Adelaide): All Contract Practice appointments in South Australia.

Western Australian Branch (Honorary Secretary, 205 Saint George's Terrace, Perth): Norseman Hospital; all Contract Practice appointments in Western Australia. All government appointments with the exception of those of the Department of Public Health.

Editorial Notices.

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